

# THE MONIST

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## THE RESTORATION OF SCIENCE

SCIENCE has to be replaced, where she was at the beginning, in a central and integral position in human thought. The false and mischievous antithesis, which has long been current—perhaps more in England and America than elsewhere between “science” and the thought which gives us literature, religion and the greater part of what is now generally known as “philosophy,” must be surmounted. There are still contemporary and serious writers who would treat science as a clever and powerful instrument for extracting secrets and riches from nature, but essentially materialistic and alien from their lines of thought and that frame of mind which puts us in contact with the infinite and eternal, which elevate our being and should direct our actions. Science, in short, to such thinkers belongs to a lower and temporal order; art, religion and philosophy arise from and should possess the higher nature. No doubt the deeper and truer view is now making itself heard more strongly, but the false and shallow one remains and is a grave obstacle to intellectual and even social progress; to understand the problem and its solution, we must turn back and trace it to its source. Now in the beginning, whenever that was, there was no such division between “science” and other departments of thought,—art, religion, or philosophy. In the most general sense, of accurate thinking based on observation, the earliest men were scientific, in studying the habits of the animals they chased or the dangers of nature from which they protected them-

selves. At the next stage, from which the Greeks directly derived the raw material of their science, science, so far from being divorced from religion, was actually pursued for religious purposes. This was the science of the ancient priesthods, especially in Egypt and Babylonia, who arranged their calendar of religious festivals by observations on the movements of the heavenly bodies.

The first suggestion of any antagonism between scientific and religious thinking came in Greece, when men like Anaxagoras and Socrates were arraigned for teaching which seemed to conflict with the established beliefs and practices of religion. This early opposition however, was by no means comparable to the later alienation of science from philosophy or religion. With Anaxagoras or Socrates the new thought was working *in pari materia* with the old; it was criticizing and transforming old conceptions of world-forces, but not in the modern sense attempting to set up another set on a lower level. Socrates spoke with the utmost reverence of the gods and "the divine" and found a new source of divine inspiration in his own conscience. It was not as materialist but as reformer and revolutionary that he and others like him were attacked by the conservative mob of Athens. Such recasting of fundamental beliefs will always go on so long as men continue to think about their beliefs and try to make them square with their reason.

Where then must we look for the beginning of the divorce? First, to the division between philosophy and science which followed Plato, and is to a large extent the sequel of his system, or at least of that system as interpreted by the bulk of Platonists. Plato taught, or was supposed by most of his followers to have taught, that philosophy led the mind to the contemplation of a world of ideas

apart from, and superior to, the data of sense with which our daily thinking is concerned.

The Platonic tradition therefore became, apart from its value as stimulating high thinking on the spiritual plane, a barrier between science and philosophy and religion.

But other causes, during the decay of the old Greek world, tended in the same direction. In the first place the springs of science itself were from various reasons temporarily dried up. Triumphant Rome was absorbed in other cares, and for a thousand years Western Europe contributed little to the advance of science. This left the field open to the commentators and the theologians who built up the fabric of Aristotelianism and scholastic theology which had to be assailed in front by the men of the new science at the Renaissance. But there was yet another cause, which we may trace directly to the Greeks themselves. Science, that is inquiring about things and increasing knowledge, was always held in high honour among them, but not the application of the knowledge so acquired to practical uses. Industry and trade, the service of human bodily necessities and the exploitation of the earth, fell more and more into disrepute as philosophy became regarded as a spiritual and super-material function. Trade was mechanical and all mechanical functions were base, and the increasing abundance of slaves in the Roman world provided the human implements by which, in accordance with Aristotle's theory, mechanical work could be done. Slavery in the ancient world and its disappearance in Europe by the time modern science arose, are the chief social causes of the different relations between science and industry in the two cases. In the modern world *Homo Sapiens* and *Homo Faber* have joined hands, and the amazing transformation scene in which we live, is the result. But the greatness of the success has brought evils in its train. The speed and sweeping nature of the changes have increased the cleavage

which we saw was opening in the ancient world between science and the other sides of human thought. Religion moves so slowly that we are witnessing at the moment a few trifling alterations in the English Prayer Book presented with great diffidence by the authorities of the Church and with an assurance that they do not involve any change in the doctrines which remain firm and unaltered. Nor does literature as a whole show much greater signs of having absorbed the new ideas or of sharing in the new advance. In history, as we shall see, a movement is taking shape, but it is still in the earliest stages and seems to the bulk of historians an impossible if not undesirable revolution.

In some quarters the triumphant practical advance of science and the consequent industrialization of the world have created a reaction, and driven the defenders of the older ways of thinking, which they regard as the truly spiritual, into the deeper recesses of their own spirits. To such thinkers the example of Indian philosophy and the discipline of Yoga seem a shining beacon. Turn the mind inwards, they say, and the true light will appear. To them and to the one-sided Platonist the evidence of the senses, the colour and glory of the world, are fleeting and deceptive; only in the security of our own consciousness can truth be reached, and the more we abstract ourselves from the flux of time the nearer we approach the eternal truths. The hopeless stagnation of Indian thought and practice pursued on these lines is patent to all, and non-co-operation must break down as surely in philosophy as it is doing before our eyes in politics.

There is of course another road and this has been brilliantly pointed out to all thinking people; to philosophers, scientists, historians and poets alike, by Professor A. N. Whitehead in his recent Lowell Lectures on "Science and the Modern World." It is one—perhaps the most interest-



ing—of many recent attempts to bridge the gulf of which we have been speaking, and it calls for special attention both on account of the eminence of its author and because he makes a novel approach from the point of view of a mathematical philosopher, imbued with the new relativity spirit and trying to embrace all sides of human thought—art and literature as well as science and philosophy in a fresh synthesis. We will say a little more about this later; but before that it will be well to see what has led up to it.

The divorce was most complete at the end of the eighteenth century. That period, which we may regard either as the age of the French Revolution, or of the revolution in industry, or of a new Romantic movement in literature, was from every point of view a turning point. Perhaps in the long run it will be found that the aspect treated in this article is the most fundamental of them all. There can be no doubt that the climax in the alienation of science came then. The mechanical view of the universe which had been developed from the work of Galileo and Newton, began to be extended to man himself. Our physical organization was supreme and science appeared as a rival, fatally and hopelessly divided from the synthesis based on religious revelation or the imaginations of the poets. But from that moment—the turn of the centuries—the tide of thought also turned, and we may trace the growing change through the nineteenth century on parallel lines alike in philosophy, science, religion and art.

The work of the positivist school, and in particular of Comte, has often been treated as the culmination of the divorce, the extreme point reached in the mechanical and determinist outlook. But this is a partial and misleading view. It was in fact Comte who first perceived and brought into prominence the impossibility of a permanent alienation between the two sides of thought and the constant evils that arose from its temporary maintenance. He more than any

other thinker demanded a return to the unity of thought which marked the earlier periods when as with the first Greek thinkers philosophy was understood to be the master science and to cover all.

This is in fact one of the two leading ideas in Comte's mind, and the other was the establishment of an effective alliance with religion based on the essential elements both in religion and in science. It is now generally assumed that this attempt has failed and it is often treated as negligible or absurd. But when one reads any recent book dealing with the same general range of ideas the question which occurs most frequently to the mind is this, Could this possibly have been written without the previous writing and influence of Comte's philosophy?

Certainly to the historical student of the restoration of science to its integral place in thought and action, Comte's work in the early part of the last century is the turning point and central fact. We shall gain, therefore, most light on the whole question by summarizing briefly Comte's aims on both sides of his work, and showing, not wherein he failed but wherein he fell short of our present views as represented by Prof. Whitehead; and then turning shortly to the third aspect on which Whitehead is himself so earnest and enlightening, viz. the connection between art—and especially poetry—and science.

Integrating science with philosophy is the first and fundamental task, for this would give us unity of thought. Integration with religion would then follow with the spread of education, for true thinking is ultimately irresistible and the real driving force of human progress. Comte first saw the supreme importance of both problems and made invaluable contributions to their solution, but he was hindered by two drawbacks. He stood too near the old mechanical synthesis which had given science its triumphs in the two preceding centuries but was on the point of

being enlarged, if not superseded, by biology and relativity. And, being himself a pure mathematician, he took the too limited and exact view to which the mathematical mind is always and naturally inclined. We will consider the disadvantages of this in a moment, but, on the other hand, how great is the gain! It was the sharp-cut and definite outline of the first physical synthesis which gave it the conquering impulse of three centuries, not yet exhausted. Comte inherited this power and extended it for nearly another hundred years to the wider sphere of moral and political activity which Newton and his immediate compeers did not touch. But he suffered in another way from the rigidity of his mind. Not only was he too near and therefore too directly under the influence of the builders of the mechanical theory, but also he was too ready to condemn and distrust the use of mental powers by others in a way which did not obviously fit in with his own accepted view. Astro-physics is the notorious case of this want of open-mindedness and confidence. A new branch of science was coming to the birth, just as Comte died, which was to extend our knowledge to undreamt of fields and ultimately to lead the way to a more profound synthesis than the pure mathematicians had been able to accomplish or conceive. Not only did Comte ignore all this, which was inevitable, but he scouted the possibility and discouraged the attempt. It is the classical example of the danger of a closed system, but should not blind us to the value of the actual work done and the seeds sown within the area he had marked out. This was of profound and far-reaching scope.

First comes the insistence on the need of making philosophy scientific and science philosophic, in a word, of integration. The necessary result of the divorce which had persisted for so many centuries, and which is still extant, was that philosophy became purely "metaphysical" in

Comte's sense of that word or purely critical. He tended therefore to identify the two very different frames of mind and spoke of a critical phase of philosophy as one which dealt with supposed "entities", not verified by observation. This, in itself merely a piece of unfortunate nomenclature, had the misleading effect of spreading the view that there was no legitimate and highly necessary function of criticism to be performed by philosophers, properly equipped with scientific and historical knowledge. It is of course one side of philosophic thought and only to be deprecated when it professes to be the chief or only work of the philosopher. It was Comte's greatest service on the theoretical side to point the way to a real philosophy on the lines of the earliest thinkers, and incorporating all the generalities of subsequent thought. Men have often dreamt of a "*scientia scientiarum*", but no one before Comte had perceived the true lines of its construction, resting on mathematics and reaching up to the highest and most special "laws" relating to society and human nature itself. No one could maintain that he completely achieved this supreme structure; no one can deny that his vision of its need and possibility was the most penetrating and influential in modern times.

He had no sooner grasped this master-thought than he went on to the other side of the great work of integration which we have seen to be necessary, if harmony is to be brought into public or private life. There is no need here to discuss either the reality or the characteristics of "Ages of Faith"; nor are we concerned with the merits of Comte's own "Religion of Humanity". The particular form which the synthesis may take is another question, and Professor Whitehead sketches in moving, but somewhat vague and contradictory terms his own ideas of a religion permeated by science. The point to Comte's credit is that he saw the need and gave a brilliant and powerful sketch. All thought and action were to centre round the capital conception of

Humanity. We have yet to see whether any other master-thought—the Universe, or Infinite self-realization, or God, re-interpreted in one or other of the thousand later forms—can actually bring thought together and inspire to action as well or better than this. Obviously it is very largely a question of language and of philosophical definition; obviously also the more completely satisfactory synthesis has not yet been framed.

The end of the eighteenth century, the time of Comte's youth, was, as we mentioned above, the period of the most acute antagonism between the old religious order, the Catholicism of the Continent, and the new aspirations awakened by science. The divorce had become an open feud. Comte strove to compose the quarrel by every means of approach, besides framing his own new religious synthesis on the basis of Humanity. He tried to form an alliance with the Pope and sent letters to the Head of the Eastern Church. At home he welcomed the efforts made by certain liberal thinkers to inspire a new spirit in the old Catholic order. Lamennais and De Maistre were harbingers of a better state of feeling in which it might be possible for a definite and effective religion, even if it used the traditional worship and forms of thought, to make common cause with the followers of a religion based on science. His view in this matter also was necessarily limited by his environment, and he took no account of the permeation of the looser forms of Christianity, outside the Catholic Church, by the new ideas due to science. The sequel has shown that it is in this region that change is easiest, and that Christianity of an undogmatic type may survive indefinitely, and become the channel of a humanitarianism only to be distinguished from Comte's religion by its label and the less strictly ordered nature of its creed.

It was in Protestant countries too that the permeation of literature, especially poetry, by science, was first con-

templated and attempted. Goethe stands of course pre-eminent in this respect, but Shelley and Wordsworth are evident witness of the change that was taking place. Professor Whitehead calls attention to this and makes interesting quotations both from Wordsworth and Shelley, but he oddly omits all reference to Wordsworth's famous Preface to the second edition of the "Lyrical Ballads" in which the whole question is thoroughly discussed, and Wordsworth looks forward to a time when poetry will be as naturally pervaded by the ideas and discoveries of science as Homer was by the fire of war and adventure or Virgil by the glorious rise of Rome.

"If," he says, "the labors of the man of science should ever create any material revolution, direct or indirect, in our condition or in the impressions which we habitually receive, the Poet will sleep no more than at present; he will be ready to follow the steps of the man of Science, not only in those general indirect effects, but he will be at his side, carrying sensation into the midst of the objects of the science itself. The remotest discoveries of the Chemist, the Botanist, or Mineralogist, will be as proper objects of the poet's art as any upon which it can be employed. . . . If the time should ever come when what is now called science, thus familiarized to man, shall be ready to put on, as it were, a form of flesh and blood, the Poet will lend his divine spirit to aid the transformation, and will welcome the Being thus produced, as a dear and genuine inmate of the household of Man." And he gives the philosophic ground for holding that this intimate alliance of Science with Poetry is natural and permanent, for "the Poet works by creating in the minds of his hearers or readers that degree of pleasure which is inseparable from sympathy with the complex of ideas and sensations which surrounds us all, and which the Poet idealizes and evokes. . . . Poetry is the breath

and finer spirit of all knowledge, the impassioned expression which is on the countenance of all science."

It cannot be said that the alliance has yet been consummated; it does not stand out as a bright and recognized fact in the consciousness of mankind, though signs of advance to the goal are not wanting. Sully Prudhomme, who in 1906 was still lamenting the little influence exercised on the inspiration of poets by the conquests of science, was himself perhaps the poet who had felt the inspiration most deeply. The expansion of thought, the new greatness and yet the apparent futility of man, the conflict of impulses and ideals, all this—the direct fruit of science—is found reflected in his work even more than in Tennyson who stands nearest to him in this respect. Professor Whitehead quotes appositely from Tennyson and puts him in the right English succession after Shelley and Wordsworth and going back to Milton. Each of them, while not working under the conscious inspiration of science, which Wordsworth predicted and Sully Prudhomme accepted, bears yet the clear impress of the scientific and religious outlook of his time. Milton, setting out to "justify the ways of God to man", Wordsworth moved by the eternal underlying unities between Man and Nature, Shelley, following the thread of infinite change and mystery in things—the lesson of the laboratory—Tennyson torn by doubt and conflict, the child crying in the night, but yet clinging to the "larger hope".

Whitehead might have added, and we ought to add here, the gallant and inspiring effort of Alfred Noyes to present in epic form what is in fact the greatest epic in history,—the discovery of truth, in the lives of some of its most dramatic discoverers. For "The Torch-Bearers" is undoubtedly the most distinguished work in English on the lines foreseen by Wordsworth in his Preface.

Mr. Noyes's epic, while it links up science with poetry, opens also another, perhaps the best way of all to establish-



ing science as an integral part of our mental outlook. His poems, besides their dramatic and personal value, are vivid chapters in the history of science. Now history in a wide and vital sense is a fundamental part of the process of education and will envelop it more and more as time goes on. This is clear from the very nature of education itself. In educating each rising generation the adult community passes on its own structure and ideas, and aims at enabling the new-comers to take up the work of the past and develop the existing system to a higher point of richness and efficiency. This is a historical as well as an educational process, and, to be in any sense complete, must involve introducing the learner to the scientific as well as other parts of his human heritage. Some people, struck by the way in which each individual reproduces biologically the chief phases in his animal history, have thought that the whole educational process might take an evolutionary form and lead the child on from being a simple savage through the stages of fighting and making and thinking to the full stature of a modern man. It would be a painfully elaborate and impossibly slow procedure, but the idea, like all ideas based on substantial truth, may give us guidance at various points in the upward path. It prescribes, for instance, that simple and practical activities should precede the abstract and philosophical thinking only possible at a maturer age. In particular it teaches us that as every great construction—whether a state, system, or an engine or a scientific theory—is the result of generations of consecutive toil, so we can only understand it by following its genesis. We understand ourselves only by studying our own history, and the same must be true for every part of the work which makes up the whole achievement of man, or rather is humanity itself.

The idea has long been adopted and often illustrated in other parts of human activity, especially in the growth of

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civil government and the building of states. Lucretius two thousand years ago described the primeval savage fighting with tooth and claw and gradually learning the arts of peace, and every school history for generations has painted the early Britons with woad and attempted to portray their rise under successive conquerors to the empire of the seas. But the similar growth of science as a continuous, connected and organic thing was never understood until the last century because of its temporary lapse with the decay of the Greek genius and the decline of Rome. The Roman Empire and Roman Law never became extinct, but Greek science was for a time forgotten, and, when first remembered, was thought of rather as a special manifestation of their speculative ingenuity than as the foundation of all systematic thinking, the first step in the ordered structure of the human mind.

The story of modern science was entirely different. It began with the revival of Greek studies, but it enlisted from the first the co-operation of all the adolescent nations which sprang from the ruins of Rome; and—a point at least as important—it was from the first in close and fruitful contact with industry and the arts of life. When at last it was seen, by the end of the eighteenth century, to have in it the power of uniting mankind practically and transforming society, men began to turn back to the early stages of a growth which had led to so amazing a result, and found in them the germs and explanation of the sequel.

It is no mere accident that our own Whewell's *History of the Inductive Sciences* appeared almost exactly at the same time as Comte's *Positive Philosophy*. Comte's capital work was published in 1830, Whewell's in 1837. Comte's work had far the wider sweep; he aimed at showing the whole process of thought and action in the past as being determined by the growth of "positive" thinking, i. e. of science. Whewell, like most Englishmen, was less

completely systematic; he remained a convinced theologian and a conservative in politics. But so far as science was concerned he pointed out for the first time in a connected treatise that history was the true way of approaching its method and understanding the philosophy. He was the father of the history of science, but of science as an independent activity, continuous in its own development but without the vital connections with other sides of history which we are now striving to establish as facts and exhibit in writing and teaching history.

It is interesting to trace in all the newly-written histories of the Modern World the space which is assigned to the rise and influence of the scientific spirit, and to note whether the writer has any inkling of the true connection of thought and action in the matter. To take the most obvious example from the eighteenth century: the reforming monarchs and ministers before the Revolution, Frederic the Great, Joseph II, Pombal, Aranda and the rest, besides the *philosophes* in France, were all inspired by the new enthusiasms and beliefs engendered by the scientific outburst of the seventeenth century. Does the particular historian we are examining see this and bring it out in his narrative of events? It is a simple test but an infallible one. The book which lies on my desk at the moment, and is in many respects admirable, published by the Oxford Press, fails rather unexpectedly in this point, while the recent splendid volumes by the American historians Breasted and Robinson (*The Conquest* and *The Ordeal of Civilization*) allow for the connection both in ancient and modern times even if they do not develop it sufficiently. For this reason alone, though they have many other merits, they will succeed and the light will spread gradually, even in England. The World War and the League of Nations have impressed indelibly on the public mind the nature of scientific organization, and the fact that we are now all bound

together by links that have been forged by the successors of Galileo and Newton. In the nineteenth century and after, the connection is unescapable, and we may hope that link, once perceived, will later on be traced back through all its strands to the Greeks, the Egyptians and even the first savages who counted their fingers and founded the decimal notation.

The committee appointed some few years back by the British Association to consider the teaching of the history of science in schools has had some effect and references to history, and the historical method of approach, are now much more frequent in scientific text-books. Many, like Mr. Hector Macpherson, in his recent *Modern Astronomy*, are able to give quite a sufficient general view of their subject in the lives of those who have built it up, and this presentation, though not necessarily the best at all stages or for all subjects alike, has a strong additional human interest. It is a vertical section of history and may lead students who hear of Kant and Goethe as scientific thinkers, to pursue them afterwards into some other branch of their activity.

All this is to the good; yet the larger task remains to do. History is still regarded as primarily an account of past politics, and those who write the *Memoirs of a Palmerston* still stand in another class from those who discuss the work of Newton. Nothing will do more to promote the unity of thinking, and restore science to its original place as the keynote of human action, than the spread of the way of looking on history of which the work of Messrs. Breasted and Robinson is the latest and one of the most favorable examples. We are told by a recent philosophic writer<sup>1</sup> that

<sup>1</sup>Mr. R. G. Collingwood, *Speculum Mentis*.

we live now in an age of history and that history has supervened on religion and science, permeating them and taking them up into higher synthesis which will be crowned in the

end by an ideal philosophy in which all will be united in an all-embracing consciousness. This may be so for a very small number of the élite, but generations must elapse before even the bulk of the educated classes have learnt to view their science historically and many more before mankind as a whole has acquired the preliminary scientific training which enables us to adjust our actions truly and fit mankind and nature into one harmonious scheme. Thus to link science and history, in our habitual thinking and in teaching both, would do more to hasten the unification of thought and action in the world than any other thing.

The change is approaching. Both scientists and philosophers are ready to welcome it and in many cases taking active steps to connect their isolated position and come into the main stream of human progress. The political historian has up to the present been less affected by the movement and it is his aloofness, especially in England, which remains the great obstacle to union. He distrusts and avoids generalizations and the connection which is here advocated, with other branches of thought or research savors to him of the most dangerous and least well founded generalization. "Let's stick to our own job and plough our own field;" that is the motto, and so long as nothing is done either within or outside the pale of technical "historians" to bridge the gulf, to frame these connections which are so much distrusted, so long will the separate disciplines and interests dominate both in the schools and in the public mind. Hence let us be thankful to bold men like H. G. Wells, and the still better equipped Robinson and Breasted, who face the obloquy of sciolism and superficiality, and the inevitability of occasional mistakes, to get the good work going.

To sum up this last, and from a practical point of view, most important aspect of the subject, science began in a prehistoric age. If we date it only from the Greeks, it ap-

peared among them before the "Father of History." It was the strongest intellectual current in the earliest days of its appearance, the centre of Greek philosophy and intimately connected with their social and political development. It fell away for more than a thousand years and unscientific thinking established itself on rival, traditional and independent lines. But from the stream of revived science has come in modern times the true historic spirit, involving ordered movement, the universal continuity of change, above all, what we know in human evolution as "progress". This is the fruit of science; and history, in this sense new-born, has now to return upon itself, and put back science where she once was, and must be again, at the heart of all serious thinking, the central thread of human life, the guide to sound collective progress in the future.

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## ALEXANDER'S METAPHYSIC OF SPACE-TIME. III.

### III. SPACE-TIME AND KNOWLEDGE.

THE theory of knowledge "emerges" at its proper level in the Alexandrian hierarchy as a consequence of the spatio-temporal hypothesis which is its basis. Standing as it does for that phase of reality which is primary for us but derivative metaphysically it offers experimental evidence for the truth or falsity of the initial assumptions of the theory. If we find that knowledge, adequately analyzed and freed from false presuppositions, proves to be precisely the sort of thing the Alexandrian hypothesis would lead us to expect, if the fact of knowing is seen to be not an anomaly but a natural consequence in the world of Space-Time, we shall have additional grounds for accepting that theory. If this verification is supplied only in part, and for precisely that part of the theory which is grounded in relativism, and if further it is contradicted and finally superseded by just the sort of absolutism we have objected to throughout, the result will stand as evidence for the validity of the criticism we have already made for Space-Time and the categories. We shall find that the theory to be considered is in all truth the natural result of the Space-Time hypothesis, but hence of an hypothesis strangely divided against itself, the source of error as well as truth. Space-Time is indeed the matrix and progenitor of this epistemology, but we shall be re-



minded that the sins of the parents are visited upon their children, even unto the third and fourth generation.

Again we start with a thorough-going condemnation of bifurcation in all its forms. That curse of epistemology, the "real" object which is not relative to its appearances but remains self-complete beyond them, is quite definitely eliminated. The thing known is the synthesis of its appearances and contains no element not given in experience. Transcendence does not imply a reference beyond the experienced world but simply the continuity and relatedness of experienced objects to each other. Nowhere do we find a favored absolute which possesses a simple and self-complete constitution. Even the "real appearances" of a thing belong to it in specified relations, and, if reality is intrinsically temporal, can only so belong to it. For then the time differences which result in varying apparent shapes are not mere mistakes to be subtracted in order to get at the reality but rather are essential phases of the spatio-temporal reality itself.<sup>1</sup> If "objects" are the appearances of a thing, the thing itself is their unity in a single spatio-temporal locus and nothing more. "The unifier that makes a thing a thing is its space-time."<sup>2</sup>

And just as the thing must not be separated off from its appearances as though it could exist behind and apart from them, so the appearances must not be taken as self-complete. The view that a thing is just the class of its appearances is explicitly rejected.<sup>3</sup> In a sense each appearance does point beyond itself, for it is intrinsically related to others through the space-time they jointly occupy and this relatedness is essential to it. This is the real import of Alexander's novel theory of intuition, the assertion namely that "instead of supposing that extension is a partial character of a color or a touch, we may suppose

<sup>1</sup>S. T. D., II, p. 196 and following.

<sup>2</sup>S. T. D., II, p. 183.

<sup>3</sup>S. T. D., II, p. 196.

color to be a character of the extension, that what we see is not extended color but colored extension."<sup>4</sup> And this connecting extension to which all *sensa* intrinsically refer and in which they are unified is given directly through intuition. "*Sensa*" are not to be treated as little substances extrinsically related, as on so many realistic theories of the "new" variety; they are characters of the spatio-temporal unity in which they are connected. The relativity is thus reciprocal.

Hence Alexander seems to have avoided both the perilous extremes of epistemology. The thing is relative to its appearances or objects, and even as barely spatio-temporal it is to be taken as a synthesis of perspectives. But equally the appearances are relative to the thing and are given as characterizing it, not as characters of themselves as on the *sensum* theory. Objective relatedness is not a fact to be explained away by a retreat to a self-complete thing or to *sensa* only externally related; it is the basic fact which explains both the immanence of knowledge and its transcendence.

And hence we can see the meaning of that great saying which is the crowning glory of the Alexandrian theory, the assertion that knowledge is *compresence*, and hence an instance of a type of relatedness which is basic for reality as a whole. Taken in itself this is a hard saying, but when we recall the meaning of *compresence* upon even the Space-Time level it appears very well founded. For two point-instants in Space-Time are never together simply but are variously connected by the perspectives in which they lie. The point-instant of reference is not together with all other point-instants in the same sense; if it were, Space-Time would be as ruinously blank as pure Space. Its *compresence* is conditioned by interaction, by the lines of advance which connect it with the rest, and hence it will

<sup>4</sup>*S. T. D.*, I, p. 38.

relate the world from its own standpoint. Compresence is not mere togetherness; it is togetherness and distinctness, and means that while each point-instant is a part of the world it is compresent selectively and after its own fashion.

When we reach the level of knowledge we discover an analogous situation. Knowledge is a way of being together with things. The ruinous assertion that knowing somehow cuts us off from the world is contradicted by the very evidence on which it is based. The relativity of knowledge is the proof of our relatedness. If man were lifted above the world and outside its vicissitudes he might expect to inspect its absolute constitution. It is because he is so indubitably interacting within it that his knowledge must be relative. And so with Alexander the fact of perspective is based and grounded in interaction. Not only is knowing in this sense a way of being together with things, the perspective *is* the reality in that relation. "For a perspective of Space-Time is merely the whole of Space-Time as it is related to a point-instant by virtue of the lines of connection between it and other point-instants."<sup>5</sup>

Selection is equally central. It is the real world with which the knowing mind is together, but it is together after its own fashion. Just so a point-instant is variously related and a perspective from its instant will show the world in that context. The individuality of the center of reference determines the selection, being what and where it is, it maintains a unique standpoint. And this is not an anomaly to be explained away; it is required for that very distinctness in togetherness which was seen to be essential for reality itself. Point-instants are compresent because each is connected with the rest from its own standpoint; each determines a common world from its own point of view. The relation is always immanent, for what is thus related

<sup>5</sup>S. T. D., I, p. 77.

is the very world itself, not a duplicate or image. Yet it is always transcendent, for there are other points of view and each is intrinsically relative. And the relation that distinguishes them is also the relation that connects. On this basis there is nothing paradoxical in the dictum that "Cognition then, instead of being a unique relation, is nothing but an instance of the simplest and most universal of all relations."<sup>6</sup>

To the writer this seems a great contribution to the theory of knowledge. The root of our problem has been the apparently anomalous character of knowledge. Itself quite clearly relative, it has seemed out of place in a world of absolutes. We ought to know objects in themselves, but we do know them only relatively, hence there is something wrong with knowledge. Either its relativity or its objective validity must apparently be surrendered. If Alexander has shown us that such relatedness is not an anomaly to be explained away but the basic fact about reality, his service has been great. For knowledge is compresence, interaction, and in such interaction mind is together with things from its own standpoint. Hence no mere registration of an external environment is to be expected, much less the fabrication of a new one. The alternative is at least promising.

The remaining problem is to give full value to both the distinctness and togetherness implied on the level of mind, and our author has carried this out with great ingenuity. *All* appearances are and of right ought to be relative. They are "selections" from the world and must be. For even if all mental and physiological peculiarities were eliminated, the fact of variations due to position in Space and Time would remain and we have seen that this is of the very being of reality. "Real appearances" are such as involve this basic relativity but no other. Variability in shape is

<sup>6</sup>S. T. D., II, p. 82.

accounted for on this basis. Since light takes time to reach the eye it follows that an illuminated disc will appear smaller at a distance since "at a greater distance the time-interval between the end and the center is reduced, because the distance of the ends from the eye, the path which the light has to travel from them, is increased relatively less than the distance from the center is. Consequently the ends are later than the center by so much less when the disc is far off than when it is near. We see a smaller disc because the disc occupies less time under the conditions of vision."

The point to notice is that on this theory there is nothing surprising in such variability. It does not argue for some intrinsic defect in knowledge but follows from its basis in reality. In a spatio-temporal world the apparent shape ought *not* to be invariable from different standpoints. There would be something radically wrong if it were. For spatio-temporal relatedness is a genuine fact and the relativity is a function of such relatedness. Such selectiveness is a function of compresence on *any* level and thoroughly to be expected here. You do not get at the reality by subtracting such differences; without them the thing would have lost its temporal reality. "Mere appearance" introduced a further relatedness to other things. Again the principle is the same. A stick in water ought to look bent and a person who saw it otherwise would need to have his eyes examined. In that relation the given character holds and there is no mistake about it. We have what Whitehead would call a three term relation. If we took it as a two term affair, if we supposed that the stick was bent in itself, there would indeed be error. But that would be to ignore the very relatedness which has been taken as basic throughout. Even in illusion there is no error. A further relation is introduced and we have to deal with the

<sup>7</sup>S. T. D., II, pp. 196-97.

peculiarities of individual minds. But once more, *in that context* the given object is real, it is a fact about the world in its relations to a given mind and follows from the connections of that mind with the world. Again, if the relation is forgotten there is error, but the purport of this view is to indicate that relations are not to be forgotten.

The togetherness involved in knowledge is equally central and equally grounded in Space-Time. When Stout raised the question as to how such variable appearances could be correlated with a unitary world, the answer was emphatic. "Any object of mind points to or means other objects combined with it in the spatio-temporal unity of the thing and any mental object is from the beginning spatio-temporal and implies a piece of space-time within which it belongs."<sup>8</sup> The connectedness of objects is thus implied in the very fact of their spatio-temporal character, for to be spatio-temporal is to be connected in Space-Time. And this connection, if the pun may be pardoned, is of the very stuff of the appearances themselves, on Alexander's view. If they were initially self-sufficient like Santayana's essences their connection would be a great problem; here it is the most natural of consequences. "Now if extent does not belong to color as such, but to colors as seen in their places within an extent, and the like is true of touch, it follows that when we apprehend the same object by sight and touch we are apprehending the same extent. There are not two distinct spaces which have to be connected by custom or otherwise, but one space which is the scene of different qualities."<sup>9</sup> Thus, when we see an orange, its hardness and other sensible qualities are suggested because all these qualities belong together and each is given as occupying the common extent in which they are united. Nor is the togetherness incompatible with the distinctness of

<sup>8</sup>S. T. D., II, p. 99.

<sup>9</sup>S. T. D., II, pp. 164-65.

varying perspectives; taken in their context they belong together of their own nature and the connection is not imposed from without but follows from the very relatedness to which their individual "relativity" bears witness.

Finally in *true* knowledge we have the account completed. Any spatio-temporal relatedness implies comprehensiveness, but minds are of a special quality and character and hence are not merely together as spatio-temporal but as minds. And this is the basis of truth. The context thus developed supplies a new reference, that to a "standard mind", to the "cooperation and competition" of different minds and the harmony of judgments between them. Thus truth is an affair of coherence and no judgment bears its validity on its face or in correspondence to some absolute reality, but rather in its connection with other judgments. Its transcendence is relatedness within a single world, not a leap beyond it.<sup>10</sup> Truth is thus not additional to reality, it is a new form of relatedness within it. The world as known truly is the world as possessed by mind in its relation to other minds; it involves a new sort of relatedness, not a new kind of being. Never was bifurcation more clearly rejected. "It seems to be thought that values because they do not exist without minds are similarly subjective, and with nothing in reality corresponding to them. But for us mind is one of the realities, and is itself in the end of Space-Time stuff. Values arise in the relation of these realities to other realities, in virtue of which a fresh reality is constituted. The mind is the highest finite reality we know. Strange that its touch should be thought to de-realise its creations."<sup>11</sup>

All this is perfectly consistent with the position so far established. If relations were not taken seriously then to make truth depend upon a specific relation to mind would

<sup>10</sup>See *S. T. D.*, II, p. 252 for this criticism of the correspondence theory.

<sup>11</sup>*S. T. D.*, II, p. 245.



be to compromise its objectivity. But once it is realised that Space-Time itself involves just such relatedness, which is thus thoroughly objective, that misconception is avoided. Nor can it be said that the cooperation and competition involved in reference to a standard mind introduces an alien principle. For compresence has meant just that from the start. "Within Space-Time we can properly identify the relation of point-instants to one another with that of persons to one another, which are assured of each other's minds not by contemplation nor enjoyment of foreign minds but by that experience of cooperation or competition which may fitly be called social. There is a society of instants which are minds established through their connections in space."<sup>12</sup> There is assuredly some mythology here in substantializing point-instants, but the relationship involved is strictly analogous. Interaction is the basis of distinction and connection between perspectives of Space-Time and the unity of such perspectives involves a standard in reference to which they are combined. This is a point upon which Whitehead has frequently insisted.<sup>13</sup> To be sure the specific relation of coherence is new; that is to be expected, since minds, like all other realities, are together after their own fashion. But the principle is identical. Each individual mind "repieces" the world in its own way and from its own standpoint, but all its judgments refer beyond themselves to a unity in which they find their place. Truth exists only in its various individual manifestations: the "standard mind" is no additional entity but just the coherence of judgments, their harmonious relatedness. And similarly Space-Time, if it is truly a synthesis of perspectives, is the harmony of togetherness of many viewpoints according to a single law or set of equations which is valid for all.

<sup>12</sup>*S. T. D.*, II, p. 41.

<sup>13</sup>Cf. especially *The Principle of Relativity*, Chap. 2.

But again, the story is less than half told. For Space-Time for Alexander is ultimately not such harmony of perspectives at all. It is rather an absolute prior to relations, a "One" which is not the standard but the stuff of which the perspectives are made which belong to it as parts or as pieces. And compresence is not ultimately this structural unity of different stand-points but a prior unity which excludes differences, an affair of simple location of points at instants and vice versa. Mind is then together with things and things with each other as being in the same container, and interaction gives way to occupation as the clue to relatedness. Hence the emphasis on mere contemplation as the essence of knowledge, where mind is along with things but makes no difference to them. And hence the anomalous character of truth where mind *does* make a difference and which consequently appears radically different from "knowledge" as such or as compresence.

The steps in the downward path parallel the principles thus far maintained and flatly contradict them in each case. First we saw that on this theory all appearances ought to be relative because they are at least spatio-temporal and merely as such thoroughly relational. Now we see precisely the opposite. As spatio-temporal, things ought not to vary with relations and do not do so in fact. It is only deception due to the qualitative character of sensation which makes them appear to do so. And this is essential to the theory as a whole. For the unity of appearances cannot for Alexander be the concrete event they qualify. Neither can it be the harmony of appearances with each other. They qualify Space-Time and this is absolute and identical for all. There can be no doubt about this. All appearances are spread out over and contained within the *same* piece of space-time and this occupation is their connection.<sup>14</sup> Unless it were identical throughout, they would

<sup>14</sup>S. T. D., II, p. 184.

not be connected. Hence the connection does in fact exclude differences so far as position, shape and other spatial appearances are concerned. The shape appears different under different conditions but it is not. Hence there is one shape which belongs to the thing simply, which is the Space-Time and the others are contained in it under the conditions of vision. We must examine the situation first of all for Space-Time itself.

How may we arrive at a single Space, starting as the theory does from a multiplicity of perspectives? What is wanted is clearly an identical framework in which the differences proper to perspectives will not occur. The connection between perspectives is to be something common or identical for them all, and, since a perspective of Space is differentiated by its dates, what is required is a "total Space" in which no such differences occur. Thus we find that "the whole of Space is the same framework as belongs alike to the real and the arbitrary selection from Space-Time at any instant; and the whole Time is the framework of the real and the arbitrary selection from Space-Time at any place."<sup>15</sup> Now these are the Newtonian Space and Time and as such our author is prepared to defend them against the relativist who interprets Einstein's theory metaphysically. Measurement is relative, to be sure, but over and above these there is a "total Space-Time which combines these worlds"<sup>16</sup> and in which such variation is not ultimate. "The length of the stick in *total Space-Time* does not change, but the dates of its points do, according to the perspective."<sup>17</sup> Consequently, "Time and Space in their ancient pure reality remain as the framework of history and the new doctrine is a new doctrine of their sensible measures."<sup>18</sup>

<sup>15</sup>S. T. D., I, p. 82. This, of course, has reference to "total" space and time.

<sup>16</sup>S. T. D., I, p. 91.

<sup>17</sup>S. T. D., I, p. 88.

<sup>18</sup>S. T. D., I, p. 91.

But we should be doing our author a grave injustice if we left the matter here. These pure frameworks do exist but they are not prior to perspectives, they are selections from them. For it was precisely this notion of a Space without temporal differences which was rejected at the outset and it cannot simply be reinstated. There must be a simple unity to reconcile differences but it is a unity based upon perspectives themselves. Thus we find that "In a single such perspective an instant is localized in only one position of space. But in the totality of them each instant is localized in all positions in Space."<sup>19</sup> Thus, by a judicious selection we can secure a Space whose points are all of the same date, and hence, in which no temporal differences are to be found. And so equally for Time. "Now when these particular selections are made of point-instants, the one from the total of one set of perspectives and the other from the other set, we have a total Space which occurs at one instant and a total Time which occupies one point."<sup>20</sup> Now it is specifically stated that these identical frameworks "do not represent what the world of Space-Time is historically at any moment or at any point. For at any moment of its real history Space is not all of one date, and Time is not all one point. And the result of the selection is to give us Space apart from its times and Time apart from its places. That Space and that Time are what is meant by the definitions of them as assemblages, the one of all events of the same date, the other of all events at the same place."<sup>21</sup> We must examine this statement.

Let it be observed (a) that in *no* perspective is there such an identical Space or Time. That has been definitely asserted and the selection by which such a Space is obtained

<sup>19</sup>S. T. D., I, pp. 80-81. An instant may be repeated at more than one point in a perspective, as Alexander has since recognized. But it must not be repeated at all points, and that is the issue here.

<sup>20</sup>S. T. D., I, p. 81.

<sup>21</sup>S. T. D., I, p. 81.

is frequently described as arbitrary. Hence it would appear that the pure framework *cannot* possibly connect different perspectives by being identical in all, for it is not identical in any. (b) This arrangement is supposed to give us "Space apart from its times", and only thus can we speak of a Space without temporal differentiation, a Space other than that of a perspective. As a matter of fact it quite clearly gives us nothing of the sort. It has been repeatedly defined as "an assemblage—of all events of the same date." But to have the same date is by no means to have no date and simultaneity is as much a temporal relation as sequence. It is just because of its unique temporal character that "total Space" has been selected. And this clearly is not enough, for the Newtonian framework was to be reached by the suppression of differences; something common to all was to unite them. Hence (c) the flat contradiction of the whole construction: "Now alike in temporal and spatial perspectives the whole of Space and Time is given, though not all point-instants. The difference of one perspective from another is that points occur in one with different instants from another. But each contains all Space and all Time. That is why I speak of total Space or Time, each is only one and the same in all perspectives and in all sections."<sup>22</sup>

When it is remembered that total Space is "the assemblage of all events of the same date" the oddity of this is apparent. All perspectives contain an identical "total" Space, a space all of one date and so far they are identical, but they differ in that their points are differently dated! That is, they differ in precisely the respect in which they are identical. We start from the assertion that in no perspective does such identity occur; we end with the conclusion that it occurs throughout. And the reason is plain; it is based on the confusion in step (b). What

<sup>22</sup>*Mind*, N. S., Vol. 30, p. 418.

Alexander was entitled to was a correlation between perspectives, a synthesis of differences. The one attained was by no means useful, but it was at least legitimate. Yet so far from eliminating the differences of perspectives it was based upon them. Just because they vary so widely and radically this arbitrary selection is possible. Then we treat this derivative unity as if it were primordial, something prior to differences instead of the result of them. It is not a synthesis of common times, it is Space *apart from its times*. Hence it can be included as a common container, the same for all, in the third act. And in this rôle it precisely contradicts the differences upon which it was based, for it demands that points be identical in date, else no "total" Space and equally different in date, else no perspectives. The unity required is the negation of the essential differences and there is no escape from that fact short of the assertion that events of the same date are at different dates.

It has seemed essential to dwell upon this aspect of the matter at some length because it furnishes the clue to the entire theory of knowledge. It is precisely the same difficulty which overwhelms the various types of appearances and for the same reason. Alexander cannot be serious with relativity. Whatever its seeming scope there remains always the "ancient pure reality" to which all these differences belong simply in virtue of their common and identical container.

Hence a new problem for knowledge. Over and above all relativity must be some form of knowledge that is infallible, in which the appearance is the reality as such. For the basis of connection is identity and this identity must be given in experience. Hence an attempt, not to explain relativity, as in the earlier account, but to explain it away. It ought not to be there; if we are to have some unity behind differences it must not be there. Alexander's

answer is two-fold, and each aspect has the unhappy consequence of contradicting the other. In each, some absolute is preserved, but not the same one in the two cases.

(a) Perspectives are relative so far as their qualitative content is concerned but they have an infallible reference to a unitary extension which is directly known and which *is* their connection. This extension is known through intuition and with it the "shape, size, and locality"<sup>23</sup> of objects. In knowing it we know the connection of objects, for it is their connection and they are given as occupying it. Hence intuition, and with it all the purely spatio-temporal properties of the things known, are absolute as given, and never do change, though they appear to. How, then, do mistakes occur with respect to this form of knowledge in which neither mind nor any other entity not purely spatio-temporal should make the slightest difference?

"The monad as such, as a mere point-instant, is infallible and any complex of them is infallible; that is, in reference to Space-Time and its elements and whatever complexities there may be in it of a purely spatio-temporal and non-qualitative character." But these spatio-temporal relations are known only through sensation. They are not sensed but intuited, but only in so far as the mind is awakened to consciousness through sensation is such intuition possible. "Hence the consciousness belonging to a piece of neural (that is mental) space is limited to the object which is presented in sensation. Though it possesses perfect 'knowledge' as spatio-temporal, of all parts of Space-Time, it is conscious only of the space and time of its object, and that object is a sensory one as well, and has secondary as well as primary qualities."<sup>24</sup> When illusion occurs, or even variation, it is due to the variation of secondary qualities. Thus in the case of variations in

<sup>23</sup>S. T. D., II, p. 147.

<sup>24</sup>S. T. D., II, p. 201.



shape, considered above. We then saw that, as spatio-temporal, there should be variation due to distance and to the laws of projection. We now see that there must not be such variation really. The shape is not different, even in the perspective, *as shape*, it is the *color* that shrinks with the distance, and since we sense the color we are seeing not the real shape but something less. "Thus while it is still the whole disc which is seen *in its full geometrical extent*, that extent looks smaller because it is filled with the qualified events of illumination and is only apprehended through them."<sup>25</sup>

Hence there is really just one shape, the "real" shape which "accounts for" the others and remains identical throughout, though it is seen differently under the conditions of vision. And similarly for mere appearances. When my face appears to be behind the mirror, I must not say that the place in which it appears and the place in which it really is are different places. "In the Space of touch and normal sight the whole of the space in front of the mirror which is not seen direct by the eye is as it were swung round so as to seem behind the mirror. But it is the same space under this mere appearance."<sup>26</sup> It *must* be the same, for the different appearances are connected by their identical place, and hence the image and the real face must be in the same place, though appearances are against them. The appearance *seems* to be displaced, that is why we call it a mere appearance. But it really is not displaced nor is it given as such. In combination with the mirror the same place is in a different place, that is all. We might well inquire, if a place has lost its position, wherewith shall we place it? If it were the identical quality differently placed in the two cases, there would be no contradiction, but here is the same *place* differently placed. And such displace-

<sup>25</sup>S. T. D., II, p. 196.

<sup>26</sup>S. T. D., II, p. 199.

ment, be it remembered, is a real and objective fact of the combination, as are all mere appearances. The parallel with "total Space" which had to be of the same dates differently dated will be obvious.

Illustrations need not be multiplied. Once you settle upon a single appearance, whether it be shape or position, as absolute, you cannot take it to be really and objectively relative in the same sense. On the level of relativism it was plausible enough to say that an event might really and objectively have different characters and different contexts. But we are no longer on the level of relativism. Now your real shape or position is really and identically fixed apart from relations and is to be the same in different relations. To say that it is in fact the same and yet also objectively different is the unfortunate consequence. The paradox about the same shape being a different shape and the same place in a different place is the inevitable consequence.

(b) There is another account of a quite different character. So far we have heard that qualities as such are relative and variable but that their reference to a single thing is infallible. The reference as such is never relative, only the quality referred. When we try to explain illusions a different version is offered and, after the fate of "mere appearance", it is not surprising. Objective relatedness, especially when mind is one of the terms, is viewed with great disfavor. The illusion must somehow in and of itself belong to the reality. Yet it cannot belong to it in the simple fashion so far considered; the illusory object is precisely *not* a character of the thing apart from mind, and that is its differentiating character. Whence, then, the absolute? It proves to be in the quality itself as apprehended. Doubtless its reference is mistaken, but *as quality* it is absolute and relatedness to mind makes no difference.

"So long as the object is contemplated in and for itself there is no question of illusion. When the mind goes on to refer these illusory objects, illusory in reference to the real thing, to the thing, then it is in a state of illusion, and we have an illusory appearance of the thing."<sup>27</sup> So in the mistaken apprehension of a grey patch as green: "The green by itself is not illusory; but the patch occupied by the grey, seen as green."<sup>28</sup> And throughout we find that illusion consists in misplacing appearances, seeing them where in fact they are not. There is no relativity so far as the appearance itself is concerned, it is that very quality which exists in the objective world in some other context; our mistake lies in so "squinting" at it that it appears to belong where it does not. "The mind squints at things and one thing is seen with the characters of something else."<sup>29</sup>

What then becomes of the theory of intuition? On that view the place of the object, which is the thing it actually characterizes, is given directly and is the one thing about which we are never mistaken as such. Now it appears to be the only thing about which we can be mistaken. There the reference only deceived us so far as the sensory content was deceptive, here the sensory content only deceives in so far as the reference is mistaken. The object "in itself" is absolute and appears in its own character, the mind "goes on to refer it" to the thing, and may be wrong. Yet if the intuition theory was right such reference is never the work of the mind but intrinsic to the object itself; the object is "spread out over the space which is apprehended with it." That was precisely the advantage of the theory. Instead of different objects which the mind goes on to correlate we have a single and identical extension given alike in all. But in reply to Stout our author says: "So far as the visual appearance is concerned, I know nothing about

<sup>27</sup>S. T. D., II, p. 213.

<sup>28</sup>S. T. D., II, p. 208.

<sup>29</sup>S. T. D., II, p. 216.

the real place of my face as revealed to touch. That comes through a different experience."<sup>80</sup> The identical reference then is *not* a datum and the intrinsic connection is lost.

The source of the difficulty is clear. Only by making the reference intrinsic could we secure the requisite connection. But then an illusory reference would compromise the datum itself and relativity to mind would make a difference. And it must not. Hence we divorce the reference and treat the datum "in itself". And that contradicts the original relatedness. Nowhere can there be real relatedness, yet without it the hypothesis fails to hold together. And such is the ultimate outcome. The theory was to avoid the difficulties of a unitary and exclusive thing by making the thing a synthesis of its perspectives. It was to avoid "logical atomism" by refusing to treat "sense-data" as things in themselves and by recognising their inherent relativity. Instead of that we have both evils on our hands. Each aspect is relative to the other, each is treated as absolute. And as absolute each excludes the other and yet requires it. The price of absolutism is a high one, in all truth.

All this as a consequence of the fact that compresence has ceased to mean interaction, relativity, and has come to mean simple occupation. The appearances occupy but make no difference to the self-identical Space. The occupation, again, makes no difference to the appearances which are considered "in themselves" and apart from such reference. Mind is merely "together" with things in an external fashion. And such "compresence" is taken to be the essence of knowledge. Mind is related to its object as is the table to the floor it occupies. And the table seems to have the advantage as a "knower", for mind introduces new complexities which tend to shut it off from the absolute constitution of things.

<sup>80</sup>*Mind*, N. S., Vol. 32, p. 9.

This is finally and very clearly brought out in the anti-thesis which now exists between such "knowing" and knowing truly. For true knowledge, as we saw, introduces an inescapable reference to mind, and this relation makes a difference. Furthermore, true knowing implies a reference to a standard, and bare occupation suggests nothing of the sort. Hence the double meaning of the cognitive relation, which Loewenberg has indicated.<sup>31</sup> If knowing be mere togetherness, then knowing adds nothing at all to the pre-existing reality which is simply alongside of it. However, knowing, in the sense in which a man may perhaps know more than a chair, is not a way of being together with things, a principle grounded in reality; it is a new and alien principle. It adds an additional world outside of and discrepant with the reality itself; the world of mind and the world of nature fall apart.

The outcome for the theory of knowledge is thus precisely what it was for Space-Time and the categories. The absolute has many forms: it appears as unrelated point-instants, as blank extension, as "pure" Space. But its effect is the same in each case. To defend the original and valuable suggestions which Alexander has made to contemporary metaphysics against a contrary tendency which nullified them has meant to defend them against Alexander himself. The process has been devious and arduous. Its justification must be that there is no existing theory more genuinely worth defending.

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<sup>31</sup>"Is Metaphysics Descriptive?", in *Studies in the Problem of Norms*, University of California Publications in Philosophy, Vol. 7, p. 163 and following.

## EMERSON'S DEBT TO THE ORIENT

### I

FOR decades Americans have spoken of Emerson as a Boston Brahmin without much thought of the peculiar nicety with which the appellation fits. Some have vague ideas of a general analogy between transcendentalism and Hinduism, but the extent to which the former was dependent upon the latter for inspiration, imagery and doctrine has rarely been studied even by scholars. But the present revival of interest in Oriental thought, the gauntlet of challenge thrown down by many in behalf of the Buddha and accepted in behalf of Christ, and the growing feeling among those who are not indifferent to the world of the imagination or benevolently neutral about the supra-mundane, that there are elements essentially complementary between the Occidental and the Oriental worlds of thought, would warrant, it seems to me, a new study of the greatest spokesman of American monists and the grounds for considering him a true Brahmin. Furthermore, the interest in the Concord sage which must have been aroused by the choice of Bliss Perry's *Heart of Emerson's Journals* as a "book-of-the-month" cannot fail to be enriched by new light on Emerson's catholicity. The large task of boiling down all of the note books into one representative volume necessitated, obviously, the omission of much desired material; but the fact that all of Emerson's notes on the Oriental scriptures and thought have been de-

leted ignores the fact that much of the blood which passed through that heart came from the East.

It is generally accepted that transcendentalism was compounded of English idealism, German intuitionism, and Oriental immanence. It is also accepted that the various Platonic schools of thought held a potent influence on Emerson. And much has been written in the past on all phases of Emerson's mind, save his acceptance of the doctrine of Oriental immanence. There, is the greatest dearth of information. The story of what a strong man, indubitably sincere and a genius, did with the ancient thought of Asia is one of the most fascinating narratives of the human mind and literary history. Emerson's was a true eclecticism, not an agnostic belittling of all faiths or an indifferent borrowing from many, but a clear-eyed, penetrating insight into the things which are the common longings, impulses and discoveries of all men, irrespective of creed or color, but covered up and hidden with much confusing verbiage.

At what age and by what means was Emerson first drawn into contact with the philosophies of Asia? What did he think of them? What did he read? How was his interest nourished? And finally, what did Emerson accept of the declarations of Upanishadic seers regarding life and religion? The following is an attempt to answer these questions.

## II

Emerson very probably came to associate the sacred writers of the East with those of the Platonic schools through his adoption of the critical attitude of the French philosopher Cousin, whose works he read. Cousin had written: "The roots of Greece and Rome are absolutely Oriental. Language, writing, the alphabet, processes of industry and agriculture, mechanical arts, primitive forms



of government, the primitive processes and characters of art, and the primitive forms of religion, all, all are Oriental. . . . When we read with attention the poetical and philosophical monuments of the East, especially those of India, which are beginning to spread in Europe, we discern there so many truths, and truths so profound and standing in so strong a contrast with those mean results which, in these latter days, have satisfied European genius that we are tempted to bow the knee before the genius of the East, and see in that cradle of mankind, the true home of philosophy!"

In lecturing before graduate classes in philosophy at Harvard, Emerson is recorded to have said: "Thought has subsisted for the most part on one root; the Norse Mythology, the Vedas, Shakespeare have served the ages. . . . The systems of philosophy are few and repeat each other; there is little that is new. One philosopher unfolds the doctrine of materialism; the next will unfold the same doctrine, but after the fashion of his own mind; the fourth will take a middle ground, until we have Materialism, Idealism, Dogmatism, Skepticism and few new thoughts. . . . When Orientalism in Alexandria found the Platonists, a new school was produced. The sternness of the Greek school, feeling its way forward from argument to argument, met and combined with the beauty of Orientalism."

These two passages show a critical attitude, an evidence of willingness to credit other races with having discovered their share of truth. But the most fruitful source of all, in a search for proof of Emerson's tolerance and interest in ethnic faiths, is his own work. Scores upon scores of passages in his Journals and Essays show that he leaned often on the Vedas for inspiration and paraphrased lines of the Puranas in his poems.

It was the concept of unity that appealed to Emerson in Orientalism. Early in life he had written in his Jour-

nals, "An obscure and slender thread of truth runs through all mythologies, and this might lead to the highest regions of philosophy." There is little change between this statement and an entry made at the age of sixty-four, when Emerson's philosophy had matured and mellowed. "Can any one doubt that if the noblest saint among the Buddhists, the noblest Mohametan, the highest stoic of Athens, the purest and wisest Christian, Confucius in China, Spinoza in Holland, could somewhere meet and converse together, they would all find themselves of one religion, and all would find themselves denounced by their own sects, and sustained by those believed adversaries of their sects? Jeremy Taylor, George Herbert, Pascal even, Pythagoras, . . . if these could all converse intimately, two and two, how childish their country traditions would appear."

In 1839 the following passage was written in the *Journals*: "The Bible—the transcendent I have said is economy also. Literary accomplishments, skill in grammar, logic and rhetoric can never countervail the want of things that demand voice. Literature is but a poor trick when it busies itself to make words pass for things. The most original book in the world is the Bible. This old collection of the ejaculations of love and dread, of the supreme desires and contritions of men, proceeding out of the region of the grand and eternal, by whatsoever different mouths spoken, and through a wide extent of time and countries, seems to be the alphabet of the nations and all posterior literature either the chronicle of facts under very inferior Ideas, or, when it rises to sentiment, the combinations, analogies, or degradations of this—People imagine that the place which the Bible holds in the world it owes to miracles. It owes it simply to the fact that it came out of a profounder depth of thought than any other book, and the effect must be precisely proportionate—I have used in the above remarks the *Bible* for the ethical revelation considered generally, includ-

ing, that is, the Vedas, the Sacred writings of every nation and not of the Hebrews alone—.”

It would be difficult to find, in all literature, a passage that exhibited more tolerance or breadth of view. To Emerson the Vedas and the Koran were Scriptures just as sacred as the Hebrew Bible. His was not the dogmatist's pose of infallibility. And one could go on, culling out passage after passage, some of which speak of Occidental natural science in terms of Hinduism. “All science is transcendental or else passes away. Botany is now acquiring the right theory—the avatars of Brahma will presently be the text books of natural history.” Nature is the same in India as in America, the basis of universal life. And all the fairy tales of the world, whether Eastern or Western, even “the most trivial and gaudy fable, Kehama, Jack Giant-killer, Red Ridinghood, every grandam's nursery rhyme contains a moral that is true to the core of the world. It is because nature is an instrument so omnipotently musical that the most careless or stupid hand cannot draw a discord from it.” God is all and in all and eternal. All that is not of the infinite source is ephemeral and will vanish. This was Emerson's faith. Let it be repeated, he was eclectic in sympathy and his philosophy was composed largely of Oriental doctrines.

Before turning from the spirit with which Emerson approached the Eastern writings, one final passage which summarizes his bias better than any other should be presented here. “Yes, the Zoroastrian, the Indian, the Persian scriptures are majestic, and more to our daily purpose than this year's almanac or this day's newspaper. . . . I owed—my friend and I owed—a magnificent day to the Bhagavat Gita. It was the first of books; it was as if an empire spoke to us, nothing small or unworthy, but large, serene, consistent, the voice of an old intelligence which in another age and another climate had pondered and thus

disposed of the same questions which exercise us. Let us now go back and supply minute criticisms to it, but cherish the venerable oracle."

Thus Emerson viewed the other religions of the world, in particular the Hindu and his Vedas. In order to look on both sides of the matter, it would be interesting to ascertain how the Hindu viewed Emerson.

### III

In a volume published by the Concord School of Philosophy in 1885, *The Genius and Character of Emerson*, there appeared a chapter, "Emerson As Seen From India," contributed by a Hindu, Protap Chunder Mozumdar. It is regrettable that the entire chapter cannot be included in this account, but passages will show clearly enough, it is hoped, that the Hindu reciprocates, that Emerson is revered and beloved.

"And now you want me to say what we think of him in India. Where the blue Narbudda, so still, so deep and pure, flows through the high milk-white walls of the marble hills near Jubbulpoor, in the natural alcoves of the virgin rocks there are devotional inscriptions in Sanscrit. I wish Emerson had composed his essay on nature there. . . . Amidst this ceaseless, sleepless din and clash of Western materialism, this heat of restless energy, the character of Emerson shines upon India serene as the evening star. He seems to some of us to have been born in India. Perhaps Hindus were closer kinsmen to him than his own nation, because every typical Hindu is a child of Nature. All our ancient religion is the utterance of the Infinite through Nature's symbolism. . . . Emerson speaks of his homogeneity with the woods and wilderness. The tranquil landscape and the distant line of the horizon gave him that perception of occult relationship between man and all things, which is the key to the sublime culture known as

Yoga in the history of Hindu philosophy. . . . Emerson laid the foundations of the true philosophy of the world by viewing matter not as a soulless succession of appearances, nor yet a creation of the brains of man, but as a mysterious, marvellous putting forth in outward form of beauty that which he inwardly realizes in the spirit. His writings too, often recalled to mind the utterances of Hindu philosophy—that all the universe is a divine dream, passing away, but in passing it reminds us of the meaning, glory, presence, and life which it reveals and conceals. . . . Yes, Emerson had all the wisdom and spirituality of the Brahmins. Brahmanism is an acquirement, a state of being rather than a creed. In whomsoever the Eternal Brahma breathed his unquenchable fire, he was the Brahmin. And in that sense Emerson was the best of Brahmins.”

Might it not be argued that where an East Indian Brahmin finds himself in such close sympathy with Emerson, there is a spiritual affinity which transcends race and color, which lifts the term Boston Brahmin out of the figurative into the literal?

#### IV

No very certain proof has ever been given of the time when Emerson first came under the influence of Orientalism. In a letter, Dr. Edward Waldo Emerson wrote: “I think that I remember dimly that even while in college his letters show that he had at least read extracts from them (the East Indian Scriptures), probably in some Englishman’s account of India.”

The Journals also indicate that in the autumn of 1830 and continued the next year, he was jotting down in a rude manuscript numerous quotations and notes. In one particular case it gave evidence that Emerson had been introduced by De Gerando and Anguetil-Duperron to the teachings of Confucius and Zoroastrianism. “And thus,” the

editors noted, "he entered on the path that, years later, lead to the Springs of Religion and Philosophy in the remote past of the Orient." If the nature of the passages copied is any evidence of Emerson's philosophical development, it will be interesting to note the following, which was entered upon the pages of the journal at this time: "Idealism is a primeval theory. *The Mahabarat*, one of the sacred books of India, puts into the mouth of Jaschak Palak these express words, 'The senses are nothing but the soul's instrument of action; no knowledge can come to the soul by their channel!'"

Again, in the Journal of 1845 he writes, "The East is grand and makes Europe appear the land of trifles." But five years previous to this, in the summer of 1840, he had written in a letter to a friend: "In the sleep of the great heats there is nothing for me but to read the Vedas, the Bible of the tropics, which I find I come back upon every three or four years. It is sublime as heat and night and a breathless ocean. It contains every religious sentiment, all the grand ethics which visit in turn each noble poetic mind, and nothing is easier than to separate what must have been the primeval inspiration from the endless ceremonial nonsense which caricatures and contradicts it through every chapter. It is of no use to put away the book: if I trust myself in the woods or in a boat upon the pond, Nature makes a Brahmin of me presently: eternal necessity, eternal compensation, unfathomable power, unbroken silence. . . . This is her creed. Peace, she saith to me, and purity and absolute abandonment—these panaceas expiate all sin and bring you to the beatitude of the Eight Gods."

When this passage was entered upon the pages of his note books, Emerson was twenty-seven years of age. It may never be possible to determine entirely just what books he read during his college years, but there is every evidence

that his curiosity was alive and his knowledge of India and her faiths profound. The Journals were commenced while Emerson was in his sixteenth year and a junior at Harvard. It is not necessary to read far before one comes upon the first reference to India. It would be illuminating, could it be determined whether the following statement was inspired by a lecture or by profound reading and insight. At any rate, it is unique, coming from the hand of a boy of sixteen. "The ostentatious ritual of India which worshipped God by outraging nature, though softened as it proceeded West, was still too harsh a discipline for Athenian manners to undergo."

On October 24, 1820, while Emerson, aged seventeen, was still at Harvard, he was curiously attracted to a class-mate named Martin Gay. Making note of this experience he writes: "I begin to believe in the Indian doctrine of eye-fascination. The cold blue eye of ——— has so intimately connected him with my thoughts and visions that a dozen times a day, and as often by night, I find myself wholly wrapt up in conjectures of his character and inclinations."

Shortly after this the Indian passages become more numerous, but there are none more interesting than a fantastic little paragraph entitled "A Venture in Romance", in which he has instilled the mysterious, occult atmosphere which many Westerners think pervades the Orient: "I was the pampered child of the East. I was born where the soft western gale breathed upon me the fragrance of cinnamon groves, and through the seventy windows of my hall the eye fell upon the Arabian harvest. An hundred elephants, apparelled in cloth of gold, carried my train to war, and the smile of the Great King beamed upon Omar. But now—the broad Indian moon looks through the broken arches of my tower; and the wing of Desolation fans me with poisonous airs; the spider's threads are the tapestry

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which adorns my walls, and the rain of the night is heard in my halls for the music of the daughters of Cashmere. Wail, wail for me, ye who put on honor as gay drapery."

The first positive knowledge that we have of Emerson's reading translations of Indian works themselves comes from the *Journal* of 1822, when Emerson was nineteen years of age. He concluded several pages of remarks on God, which expressed a rather youthful monistic faith, not yet full-blown but clearly indicating the course of his mind, by saying, "I know nothing more fit to conclude the remarks which have been made in the last pages than certain fine pagan strains.

"...Of dew-bespangled leaves and blossoms bright,  
Hence! vanish from my sight,  
Delusive pictures, unsubstantial shows,  
My soul absorbed, one only Being knows,  
Of all perceptions, one abundant source,  
Hence every object, every moment flows,  
Suns hence derive their force.  
Hence planets learn their course;  
But suns and fading worlds I view no more,  
God only I perceive, God only I adore!"

The passage was taken from Sir William Jones' translation of *Narayana*. Significant it is indeed that Emerson, at nineteen, should have found in Oriental verse the words to express his thoughts of God. And indeed the passage bears analogy to his own poem of *Pan*:

"Of what are heroes, prophets, men,  
But pipes through which the breath of Pan doth  
    blow  
A momentary music. Being's tide  
Swells hitherward, and myriads of forms

Live, robed with beauty, painted by the sun;  
 Their dust, pervaded by the nerves of God,  
 Throbs with overmastering energy  
 Knowing and doing. Ebbs the tide, they lie  
 White hollow shells upon the desert shore,  
 But not the less the eternal wave rolls on  
 To animate new millions and exhale  
 Races and planets, its enchanted foam."

Oriental translations were rarities in the New England of the mid-nineteenth century. Furthermore, Emerson did not read Sanscrit. But it was the time when the mysteries of Indian literature were intriguing the interests of English scholars and able men turned their lives to the task of giving to the West translations of the Indian epics and scriptures. In 1854 occurred one of the most fortunate of incidents for Emerson and the "international relations" of literature. In September of that year, Thomas Cholmondeley, a young Englishman, friend of Arthur Hugh Clough and nephew of Bishop Heber came to Concord with letters which introduced him to Emerson. When the latter found that Cholmondeley wished to stay in town, he advised him to apply to Mrs. John Thoreau, who took lodgers. Thus he was received into the family of Thoreau's mother and there began an intimate acquaintance between the two men. A short time after Cholmondeley had returned to England, Thoreau received forty-four volumes of Hindu literature as a gift. Of these, twenty-three were bequeathed to Emerson on Thoreau's death. The list contains the names of such eminent translators as H. H. Milman, H. H. Wilson, M. E. Burnouff and Sir William Jones. Several volumes of Colebrooke's essays were also in the collection.

A tabulation of the Oriental works which Emerson read, quoted from and mentioned in the Journals exclusive of

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those he received as a bequest from Thoreau, reveals numerous volumes of Persian poetry, translations of Confucius and other Chinese philosophers by James Legge, Marshman and David Collier, and books on Hindu mathematics and mythology. Another sidelight on Emerson's possible reading is a letter written by T. W. Higginson to the editors of *The Critic* in which he notes that he thinks Thoreau received the whole series of Oriental Translation Fund publications, as a gift from Clough and others. Under these circumstances, there can be little doubt that Thoreau shared the works with his Concord friend.

Thus Emerson's Brahminism was nourished by the sacred books of the East. The parallels in Transcendentalism and Hinduism were not accidental.

## V

The literary use which Emerson made of this wide reading is fascinating. The two poems, *Brahma* and *Hamatreya*, are generally and rightly considered to be the crystallization of the Oriental forces in his thinking. Numerous interpretations of these poems, which are too well known to need much more light, have been made. *Brahma* appeared in the first number of the *Atlantic Monthly* in November, 1857, and read as follows:

### SONG OF THE SOUL (BRAHMA)

If the red slayer thinks he slays,  
Or if the slain thinks he is slain,  
They know not well the subtle ways,  
I keep, and pass and turn again.

Far or forgot to me is near;  
Shadow and sunlight are the same,  
The vanished gods not less appear;  
And one to me are shame and fame.

They reckon ill who leave me out;  
When me they fly, I am the wings;  
I am the doubter and the doubt,  
And I the hymn the Brahmin sings.

The strong gods pine for my abode,  
And pine in vain the Sacred Seven;  
But thou, meek lover of the good!  
Find me, and turn thy back on heaven.

Dr. Edward Emerson notes the fact that his father, much amused when people found *Brahma* puzzling, said to his daughter, "If you tell them to say Jehova instead of *Brahma*, they will not feel any perplexity."

Another story is told of a little school girl who was bidden by her teacher to learn some verses from Emerson. The next day she recited *Brahma*. The astonished teacher asked her why she chose that poem. And the child is recorded to have answered that she tried several, found that she could not understand them at all and decided upon the poem which she recited, "for it was so easy—it just means God everywhere." The anecdote clearly shows that if the poem is approached with the idea of Oriental Immanence in mind, it will present no difficulties.

It is interesting to note that Emerson's friend, the mystic Carlyle, saw God with much the same eye, when he wrote, "The Eternal is no Simulacrum; God is not only there, but here or no where, in that life-breath of thine, in that act and thought of thine,—and thou wert wise to look to it."

The first appearance of the central philosophy of *Brahma* was in the *Journal* of 1830. Emerson had made the following entry: "Thought and the object of Thought are but one."

All the attempts of the past to "locate" the sources of

this poem have simply resulted in pointing out analogous passages in the Upanishads or translations of the Katha Upanishad which were of considerably later date than the appearance of Emerson's poem. Through a happy circumstance I was able to gain access to volumes of the same editions which Emerson received from Thoreau. The books arrived at Concord in 1855. *Brahma* first appeared in the Journal of July, 1856, and, as has already been stated, in the November, 1867, number of the *Atlantic*. Emerson did not receive Thoreau's bequest until 1862, it is true, but it is no stretch of imagination to presume that the friends had access to each other's libraries.

Furthermore, in the nineteenth verse of the Second Valli of the Katha Upanishad (*Bibliotheca Indica*, Vol. XV, translated by E. Roer, Calcutta, 1853) we read: "If the slayer thinks I slay, if the slain thinks I am slain, then both of them do not know well. It (the soul) does not slay nor is it slain." Compare this with the first stanza of *Brahma*. The resemblance is too close to be questioned.

We cannot here enter an extended exposition of the poem *Hamatreya* which is next in importance, in showing Emerson's indebtedness to Hindu works. But the outstanding borrowings will suffice. It is worthy of note that Emerson changed the Purana passage, "Earth laughs, as if smiling with autumnal flowers, to behold her kings unable to effect the subjugation of themselves" into

"Earth laughs in flowers, to see her boastful boys  
Earthproud, proud of the earth which is not theirs."

Two other points of similarity might be noted. In both, it is the Earth which recites the song telling of the futility of human pride and avarice; and finally, compare the Purana conclusion, "These were the verses, Maitreya, which Earth recited and by listening to which ambition fades

away like snow before the sun," with the last stanza of the Earth-song as it is in Emerson:

"When I heard the Earth-song  
I was no longer brave;  
My avarice cooled  
Like lust in the chill of the grave."

Several lines in the poem *Celestial Love* afford in their symbolism, close analogy, if not proof that they were based on Vedic writings.

"In a region where the wheel  
On which all beings ride  
Visibly revolves;  
Where the starred eternal worm  
Girds the world with bound and term;  
Where unlike things are alike;  
Where good and ill  
And joy and moan,  
Melt into one."

The wheel is a symbol not infrequently used by the Brahmin writers. In the *Svestasvatara Upanishad* the First Cause is spoken of in terms of a wheel and often is used in connection with the endless cycle of births and re-births of individual souls. Furthermore the imagery of the "starred eternal worm" might easily refer to a passage in the *Vishnu Upanishad* (H. H. Wilson's translation, 1840, received by Emerson from Thoreau) where Sesha, a serpent, supports Vishnu while he sleeps during the intervals of creation. Sesha "has a thousand heads, which are embellished with the pure and visible mystic sign; and the thousand jewels in his crests give light to all regions—Sesha bears the entire world, like a diadem, upon his head, and he is the foundation on which the seven Patals (regions

below the earth) rest. His power, his glory, his form, his nature cannot be described, cannot be comprehended by the gods themselves. Who shall recount his might, who wears this whole earth like a garland of flowers, tinged of a purple dye by the radiance of the jewels of his crest." Thus Emerson might again be construed to have borrowed a Hindu symbol to represent his idea of the Divine Immanence in which all things "melt into one."

Another curious and baffling passage in the Journals might easily be connected with lines from *Celestial Love*. In the Journal of 1845 Emerson wrote: "The doctrine of the Triform came from India, as did the poetic horror that the demons in hell had that tremendous power of vision that they saw through all intermediate regions and worlds . . . ." At approximately the same time he copied another passage from the Sixth Valli of the Katha Upanishad (*Bibliotheca Indica*): "It (the world) is like an eternal fig tree, whose root is upwards, and whose branches go downwards. This is called even pure, this is called Brahma (all comprehensive); this is called immortal; upon this all the worlds are founded; none become different from it. This is that."

These two quotations taken together will explain the following lines from Emerson's poem.

"There Past, Present, Future, shoot  
Triple blossoms from one root.  
Substances at base divided  
In their summits are united;  
There the holy essence rolls,  
One through separated souls."

The doctrine of the Triform then, is clearly that of the Past, Present, and Future, "triple blossoms" from the main root—the divine Brahma in whom are all things united, to



whom there can be no past, present or future. The relationship of the passages seems to be indubitably clear. And thus the Boston Brahmin used the literary images of India in some of his most representative work.

## VI

Now, what of the doctrines of the East?

It is exceedingly difficult to determine whether Emerson actually believed in the doctrine of transmigration as literally as the Hindus. If he did not accept the doctrine literally and in toto, at least he always considered it worthy of mention. References can be given both from his Journals and his standard published work which show that he was not unmindful of the logical necessity of some form of the transmigration theory if he was to be a consistent Brahmin.

In the Journal of 1845 he writes, "For this Indian doctrine of transmigration, it seems easy of reception where the mind is not preoccupied. Not more wonderful than other methods which are in use, and so readily suggested, not only by the manners of insects but by the manners of men. Here is a gentleman who abused his privileges when in the flesh as a gentleman, and curtailed therefore his amount of vital force. We cannot kill him for souls will not die. This punishment, self imposed, is, that he take such form as his diminished vital force can maintain. Now it takes, to make a good dog, say, half a grain; to make a great general, a pennyweight; a philosopher, two; a poet, ten; and a good and wise man, a thousand pounds. Now our ill-behaved man, on emerging from his rotten body, and a candidate for new birth, has not enough to maintain himself as a man, and, with his diminished means, nothing is left for it but that he should take a turn through nature, this time as a monkey. That costs very little, and by careful governance in the monkey form, he shall be

saved something and be ready at his return to begin the world again more decently, say, as a dog. Good Hottentot, he will rise, and one of these ages will be a Massachusetts man."

From such passages our suspicions are aroused that Emerson is writing in one of his moods of good humor. But he continues: "What other account is to be given of those superfluous triflers who whisk through nature, whom we are sure we have seen before, and who answer no purpose to the eye while they are above the horizon? They are passing through their grub state, or are expiating their ill economy of long ago. . . . 'Travelling the path of life through thousands of births'." At this, suspicions that Emerson is merely writing humorously of transmigration are not so sure. Furthermore, in all literalness, he writes of the custom of the Indian woman who "burns herself on her husband's funeral pile, because she believes in Transmigration; and being born again, if faithful, in a form not less than the last, retains enough memory to find her husband in his new form, though a dog, or a jackal, or a wolf, and by affectionate speech, recalls to him also his memory and exhorts him to divest his present unworthy weeds. In the long rotation by fidelity they meet again in worthy forms. The flame of the funeral pile is cool to the widow."

A little six line poem, *The Three Dimensions*, which Emerson printed in *The Dial*, but never in his published poems, gives another point from which to view his thoughts on transmigration.

"Room! cried the spheres when first they shined,  
And dived into the ample sky:  
Room! room! cried the new mankind  
And took the oath of Liberty:  
Room! room! willed the opening mind,  
And found it in Variety."

Whatever may be said for Emerson's acceptance, literally, of the Hindu concept, it was true that in his philosophy the soul could not die. Explain it as we may, in the light of Platonic influences or the historically more recent German metaphysics, consistency demanded that the deathless soul be provided for, and we have noted Emerson's singular mention of the Hindu transmigration theories in this connection.

It is in Emerson's doctrine of the "Over-Soul" that the closest philosophical affinity may be found with the Hindu Vedanta. Numerous men have already pointed out that the word itself is a literal translation of a synonymous Sanscrit term. Emerson regarded matter as the negative manifestation of the Universal Spirit. It has its life and development through the direct immanence of the Absolute. And in like manner, Mind is an expression of the Universal Spirit in its positive power. Man himself is nothing but the Universal Spirit present in a material organism. Man is of the Divine, lives in the Divine, and in every power he manifests he shows the Divine life within. The soul is not a separate individuality but "part and parcel of God." In reality, Emerson says, "The soul in man is not an organ, but animates and exercises all organs; is not a function, like the power of memory, of calculation, of comparison, but uses these as hands and feet; is not a faculty but a light; is not the intellect or the will, but master of the intellect and the will; is the background of our being in which they lie—an immensity not possessed and that cannot be possessed. From within and from behind, a light shines through us upon things, and makes us aware that we are nothing, that the light is all."

The Indian Vedanta repudiates a conception of the creation which implies, first, a creation out of nothing, and secondly, the separation of the Creator from His Creation, and which, finally, in this implication, leaves unexplained

the organic growth and development of the Universe. The Vedantins maintain that nature is not created but begotten with the elements of life and growth inherent in it, no external impulse being necessary for its development. The whole cosmos is a living organism—one life pervading all and connecting all, from the highest to the lowest order of beings, in such defined relations to each other as to show intelligence and purpose. The Bhagavat Gita expresses it in saying that all are "threaded on the Lord, as jewels on a string."

In Emerson's essay of that title it is in the *Over-Soul* that "every man's particular being is contained and made one with all others—and man is the facade of this temple wherein all wisdom and all good abide." And again, "we live in succession, in division, in parts, in particles. Meanwhile within man is the soul of the whole; the wise silence; the universal beauty to which every part and particle is equally related; the Eternal One. And this deep power in which we exist and whose beatitude is all accessible to us, is not only self-sufficing and perfect in every hour, but the act of seeing and the thing seen, the seer and the spectacle, the subject and the object, are one. We see the world, piece by piece, as the sun, the moon, the animal, the tree; but the whole, of which these are the shining parts is the soul."

Whole passages from the *Over-Soul* might be supplanted by passages from the Upanishads and their relevancy be unaffected. Take the following from the Chandogya Upanishad and note its resemblance to the concluding passage above. "Where one sees nothing else, hears nothing else, understands nothing else, that is the Infinite. Where one sees something else, hears something else, understands something else, that is the finite. The Infinite is Immortal, the finite is mortal."

And because of all this, we have Emerson's doctrine

of Self-Reliance. "As there is no screen or ceiling, between our heads and the infinite heaven, so there is no bar or wall in the soul where man, the effect, ceases and God, the cause, begins. The walls are taken away. We lie open on one side to the deeps of spiritual value, to the attributes of God,"—and consequently—"The soul is the perceiver and the revealer of truth. We know truth when we see it, let the sceptic and scoffer say what they choose. Foolish people ask you, when you have spoken what they do not wish to hear, 'How do you know it is truth and not an error of your own?' We know truth when we see it, from opinion, as we know when we are awake that we are awake."

Emerson gave bold counsel to the man who believed without being able to give reason for it. "Trust the instinct to the end though you can render no reason." Independent in spirit and sure that the God within him would not fail, he asks, "Why should I give up my thought because I cannot answer an objection to it?" And finally he utters what would seem a mighty paradox. "With consistency a great soul has nothing to do!" The soul within man is God and cannot err. Indeed, "man stands at the point betwixt the inward spirit and the outer matter. He sees that one explains and translates the other: that the world is the mirror of the soul. He is the priest and interpreter of Nature thereby."

An inquirer might well ask, then, of the source of this outward matter, and we have the answer in the poem *Woodnotes* where Emerson says,

"Ever fresh the broad creation,  
A divine improvisation,  
From the heart of God proceeds,  
A single will, a million deeds.  
Once slept the world, an egg of stone,

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And pulse, and sound, and light was none;  
And God said, throb, and there was motion,  
And the vast mass became vast ocean. . . ."

Emerson's use of the Hindu metaphor in the line "Once slept the world, an egg of stone" again shows how he borrowed from the Vedas. For in the Chandogya Upanishad we read, "In the beginning this world was merely non-being. It was existent. It developed. It turned into an egg. It lay for the period of a year. It was split asunder. One of the two eggshell parts became silver, one gold. That which was of silver is this earth. That which was of gold is the sky. What was the outer membrane is the mountains. What was the inner membrane is cloud and mist. What were the veins are the rivers. What was the fluid within is the ocean."

It is not necessary here to analyze fully the Hindu Maya or to interpret its implications. It has been compared with the Logos of the Christian Gospels, with the infinite modes of the system of Spinoza, and other concepts. Indian Brahmins themselves not infrequently interpret the Maya differently. It is sufficient here to demonstrate that Emerson has taken the term, understood it to be illusion and written of it as such. His verse, his essays and his journals are all evidence of this fact.

In the Journal of 1866 he wrote, "In the history of intellect, no more important fact than the Hindu theology, teaching that the beatitude or supreme good is to be attained through science: namely, by the perception of the real from the unreal, setting aside matter, and qualities and affections or emotions, and persons and actions, as mayas or illusions and thus arriving at the contemplation of the one eternal Life and Cause, and a perpetual approach and assimilation to Him, thus escaping new births and transmigrations. . . . Truth is the principle and the moral of the

Hindu theology. . . . Truth as against the Maya which deceives Gods and Men; Truth the principle, and Retirement and Self-denial the means of attaining it." In 1861 he wrote, "The doctrine of the Imagination can only be rightly opened by treating it in connection with the subject of Illusions. And the Hindus alone have treated this last with sufficient breadth in their legends of the successive Mayas of Vishnu. With them, youth, age, property, condition, events, persons, self, are only successive Mayas through which Vishnu works and instructs the soul." Here the Maya is a connecting link between the ephemeral world and the Supreme Essence, Absolute Thought and Being.

The Journals are ever so prolific of quotable passages upon this phase of Hinduism that it is difficult to eliminate them. As a final quotation from these notebooks, however, it seems well to include one more passage, which was copied in 1866 from the Vishnu Purana. "In the road of birth where there is no shelter; which great miseries make difficult; where the god of death presents himself as a frightful reptile; where they have before their eyes the mirage of objects; where the opposite affections (of pleasure and pain) are precipices; where they fear the wicked as ferocious beasts; where grief is like a fire in the forest;—how shall a caravan of ignorant beings, loaded with the heavy burden of the body and soul, tormented by desire,—how, O God who givest asylum, should it ever arrive at thy feet?"

A few lines from the poem *Illusions* will be sufficient to show how Emerson expressed the thought of Maya in verse.

"Sleep is not, death is not;  
Who seem to die, live.  
House you were born in,



Friends of your spring-time,  
Old man and young maid,  
Day's toil and its guerdon,  
They are all vanishing,  
Fleeing to fables,  
Cannot be moored.  
See the stars through them  
Through treacherous marbles.  
Know the stars yonder,  
The stars everlasting,  
Are fugitive also,  
And emulate, vaulted,  
The lambent heat lightning  
And fire-fly's flight.

When thou dost return  
On wave's circulation,  
Behold the shimmer,  
The wild dissipation,  
And out of endeavor  
To change and to flow,  
The gas becomes solid,  
And phantoms and nothings,  
Return to be things,  
And endless imbroglio  
In law and the world, . . . ”

And finally there is the poem itself which Emerson has entitled *Maya*:

“Illusion works impenetrable,  
Weaving webs innumerable,  
Her gay pictures never fail,  
Crowds each other, veil on veil,  
Charmer who will be believed  
By man who thirsts to be deceived.”

Before discussing the more modern aspects of what the East may offer the West, Emerson's supreme tribute to Orientalism would not be amiss if quoted here. "There is no remedy for musty, self-conceited English life made up of fictitious, hating ideas,—like Orientalism. That astonishes and disconcerts English decorum. For once there is thunder he never heard, light he never saw and power which trifles with time and space."

## VI

It is not our object to split metaphysical hairs. What we have been trying to do is to show in some cases the parallel and in others the dependence of Emerson upon the thought of the East. Other light, we frankly admit, might be thrown on the subject and give a slightly different shade, for Emerson's taste was catholic and his readings broad. But it must be remembered, as Cabot said, that "the fundamentals of Transcendentalism are to be felt as sentiments, or grasped by the imagination as poetic values, rather than set down as propositions." Then, again, there is the reminder of Frances Tiffany: "First and foremost it (Transcendentalism) can only be rightly conceived as an intellectual, aesthetic, and spiritual ferment, not a strictly reasoned doctrine."

If, then, Transcendentalism may be fundamentally a *temper*, it is not difficult to find many more doctrines in which there is the closest affinity between Emerson and the Hindus. Emerson was an evolutionist—to the extent that one of his critics has raised the question of how he could be an evolutionist and at the same time a mystic. Briefly, Emerson's concept of evolution must be thought of in terms of emanation. This is highly suggestive of the modern theory of evolution. It implies that Brahma, through the laws of its own being, throws itself into manifestations of itself. The Hindus illustrate this idea by

the similes of a spider and its web, the hair and nails growing on an animate body, the sea and its waves and foam, the sun and its rays playing on the rippling water. But in doing so the Hindu does not predicate that what is thus let out is separated from Brahma, which is designated its cause. He recognizes an identity of existence in the effect and its cause, the subject and the object. The effect is always latent in the cause; the cause is identical with effect. Now let Emerson speak. "The world seems very simple and easily dispatched. . . . There are but two things, or but one thing and its shadow . . . Cause and Effect, and Effect is itself worthless if separated from Cause. It is Cause still that must be worshipped in Effect, so that it is only one thing. The worship of Effect is Idolatry."

In summary, what the Hindus and Emerson obviously repudiated was the conception of creation, which implied, first, a creation out of nothing, and secondly, the separation of the Creator from His creation, and which thirdly, in this implication, left unexplained the organic growth and development of the universe.

What such writers as L. Adams Beck, friends of the spiritual messages of Asia, would have us of the Occident remember in the Oriental point of view as represented in the Upanishads, is that law is inherent in the soul and body, and that the evolutionary life of the soul is instinctive and simple, when realized. Without certain perfectly natural spiritual processes "spiritual disease" results, and this disease does not mean "vaguely unpleasant penalties to be encountered in a dubious future life, but a certain maimed and troubled existence in this, and the inevitable reaping of the sown harvest until the last trace of disease and its consequences to others is worked out." This is nothing more nor less than the Hindu doctrine of Karma, the doctrine of spiritual cause and effect—or Emersonian compensation.

Let us note Emerson's words: "Pleasant it is to the soul, painful it is to the conscience, to recognize wherever you go the fixed eternity of moral laws. You cannot be too just. There is no excess of observance: be kind in the stage, be kind in the pew, keep your word, be kind in the quarrel. Bear yourself so on all occasions, saith one, that the opposer may beware of thee. Jesus says, so bear yourself as if your trade and business was to serve that man. Don't lose this principle a moment. And your character will be its commentary and exposition. . . . When we enter upon the domain of Law we do indeed come out into light. To him who, by God's grace, has seen that by being a mere tunnel or pipe through which the Divine Will flows, he becomes great, and becomes a Man, . . . the future wears an eternal smile, and the flight of time is no longer dreadful. I assure myself always of needed help, and go to the grave undaunted because I go not to the grave."

Finally, Emerson in another instance wrote, "I am primarily engaged to myself to be a public servant to all the gods, to demonstrate to all men that there is intelligence and good will at the heart of things, and higher and higher leadings." Surely, then, the sage of Concord, Massachusetts, who was the public servant to the gods of the Vedas and the Hindus *was* a Brahmin. And the world has seen a man in whom the East met the West in a happy synthesis.

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## RECENT INTERPRETATIONS OF RELIGION IN AMERICA AND GREAT BRITAIN

### I

THE problems and view-points today regnant in the philosophy of religion within English-speaking countries are only in part of recent origin. In their general outlines, at least, some of the more basic of them emerged as distantly as Hellenism. Others, and perhaps precisely those that somewhat specifically define our orientation as a whole, may be traced back directly to the leading ideas, more especially, of Kant, Schleiermacher and Hegel. The teaching of these philosophers was at once so revolutionary in its character and so enduring in its influence that those of our present generation who have attained to self-consciousness in their reflective interpretation of religion are very apt to recognize themselves as in the midst of a stream with eighteenth century sources.

True, there are marked changes in perspective. Waterhouse, for example, describing the *Zeitgeist* of Schleiermacher's day, refers to "the ethical rigourism of the Kantians, reducing religion to a footnote to the text of morality."<sup>1</sup> The large measure of truth in this judgment should, however, not cause us to forget that the "footnote" was of distinct significance and that the considerations which led to it and to its precise place in the text of the critical philosophy were of epoch-making import. Few, we believe, would seriously dispute Pringle-Pattison's conclusion that

<sup>1</sup> Waterhouse, Eric S.: *Modern Theories of Religion*, London, 1910, p. 25. In another passage (p. 117), however, Waterhouse acknowledges that Ritschl's "doctrine of value-judgments, like so much else in modern philosophy, has been traced back to Kant."

the Kantian "conception of intrinsic value as the clue to the ultimate nature of reality is the fundamental contention of all idealistic philosophy since Kant's time,"<sup>2</sup> and many would agree that "to Kant may be traced the most characteristic forms of the Theistic argument."<sup>3</sup> The addresses and papers evoked by commemorations, in 1924, of the bicentenary of Kant's birth very generally argue that our contemporary outlook with respect to religious problems is ascribable in no small measure to the philosophy of the great Koenigsberger.<sup>4</sup> To him, the *Alleszermalmer*, may be traced the recognition (today predominant outside the circle of the neo-scholastics) that *pure* reason is impotent in the sphere of theology, unable either to disclose the god of religious worship or to demonstrate his existence. To Kant, moreover, do we owe the realization that religion may not be interpreted through the categories of spatial and temporal existences. Kant was likewise the source of certain positive insights involved in most of the technical discussions of religion today and defining for the latter their further tasks. For he taught that religion is essentially a matter of attitudes and of life, that it consequently relates to the realm of values, and that the dogmas of religion, therefore,—more especially those of theology—are expressions, not of logical analysis or purely theoretical activity, but of the inner experiences of moral agents—they are not generaliza-

<sup>2</sup> Seth Pringle-Pattison, A.: *The Idea of God in the Light of Recent Philosophy*, Oxford University Press, 1917, p. 38; cf. also pp. 46ff.

<sup>3</sup> *Ibid.*, p. 75.

<sup>4</sup> See, for example, two collections of such essays bearing the title *Immanuel Kant: 1724-1924*, the one edited by E. C. Wilm (Yale University Press) and the other by E. L. Schaub (The Open Court Publishing Co.); also a paper read at the University of Michigan by R. M. Wenley, later printed in the *Anglican Theol. Rev.*, Vol. VII, pp. 121-144; and, very especially, the lectures delivered by C. C. J. Webb at Oxford and published under the title, *Kant's Philosophy of Religion* (Oxford University Press, 1926). Professor Webb declares that we still have much to learn from Kant's interpretation of Christianity as primarily ethical in character. He stresses also the Kantian view that, while religion includes a non-rational element, this in no wise destroys its essential reasonableness.

tions or formulations of matters of fact but possess the deeper truth of symbols and of art.<sup>5</sup>

This conception of the symbolical nature of theology, and the doctrine that religion is not a cognitive product but a manifestation of broader, non-theoretical experience, were cardinal likewise in the teaching of Schleiermacher. But here religion wins its complete emancipation, even from morality, and establishes itself as an autonomous phase of experience. Indeed, it is declared as "the sense of absolute dependence" to reveal the depths of the human soul, and as "a sense and taste for the infinite" to furnish its own revelations of the ultimate order within which man and all that is finite have their being. Religion, it is realized, cannot be satisfactorily interpreted if it is dealt with simply from the standpoint of, or in connection with, ethics, general psychology or physical science; it will be distorted if envisaged in terms of any metaphysics that has been developed without initial heed to its own claims, practical assumptions and implications. Hence Wobbermin has described Schleiermacher as the Copernicus of theology. Schleiermacher's point of view has become so prevalent in current thought, and the results of his own direct examination of religious experience are still so pertinent, that, in elucidating modern theories of religion many would feel impelled to begin, as does Waterhouse in a recent book, with an account of Schleiermacher. It is not strange, therefore, that we are witnessing something of a Schleier-

<sup>5</sup> In his highly important and influential *Philosophy of Religion*, Hoeffding defined religion as "faith in the conservation of values" and variously he has described the final problem of philosophy as the determination of the relation between our highest values and existence as a whole. The connection of "fact and ideal in some rational and satisfactory manner" was likewise regarded by Sidgwick as philosophy's central task. Balfour's Gifford lectures (*Theism and Humanism* and *Theism and Thought*, published in 1915 and 1924 respectively by George H. Doran Company, New York) revolve about the thesis that the causes of our beliefs must be adequate to account for their existence and, therefore, if we are to hold to the validity of the accepted beliefs of common sense and of science we must construe the system of causes as expressions of an intelligent purpose.



macher renaissance, within English-speaking countries no less truly than in Germany itself.<sup>6</sup>

Current thought is empirical. It recognizes in religion a distinguishable feature of the life of rational selfhood and investigates it in initial independence of all else. It seeks to determine the revelations and claims of religion and to penetrate beneath ideational formulations and expressions to what is actually and psychologically primary. This empiricism, however, does not content itself merely with an examination of "subjective spirit"; it supplements this with a study of what was placed in the foreground by Hegel, namely, "objective mind." The interests and activities of social groups, the nature and power of religious communities and institutions, and the insistent features of their history—these, we today recognize, must be understood if we are serious with a philosophy of religion. Royce, indeed, as well as an important group under the intellectual leadership of Ames and King, made them the primary, if not the exclusive, determinants of their interpretations.<sup>7</sup>

Thus, to present writers it is *selbstverständlich* that religion is something quite other than philosophy or theology, and that there should be no unguarded shifting from the

<sup>6</sup> In 1913 W. B. Selbie published his *Schleiermacher, A Critical and Historical Study*; this was followed in 1926 by an English translation of the *Soliloquies* which, together with valuable introductory material, appendices and bibliography, we owe to Horace Friess. (Chicago, The Open Court Publishing Co.) Referring to Schleiermacher's *The Christian Faith*, Friess writes: "But the underlying principle of this work, that systems of theology are to be understood as symbolizing religious experience, has never commanded wider respect among all the various classes of men interested in the interpretation of religion than today" (pp. lviif.). In his recent book, *The God of the Liberal Christian* (New York, 1926), D. S. Robinson stresses the abiding importance of Schleiermacher and refers to similar estimates by other contemporary writers such as Leighton, Knudson and McGiffert (p. 51n.), and to Wobbermin's "motto for contemporary theology," which is: "Back to Schleiermacher, and from Schleiermacher forward through William James" (p. 50).

<sup>7</sup> See especially Royce's *The Problem of Christianity* (New York, 1913), Ames's *The Psychology of Religious Experience* (Boston and New York, 1910), and King's *The Development of Religion* (New York, 1910).

one to the other of these fields. They very generally hold that a metaphysical system must take direct cognizance of the broad area of religious facts no less than of other elements of experience and scientific knowledge. Metaphysics cannot vindicate its claim to being a philosophy of religion by the mere device of rebaptizing its terms, calling the Absolute "God," for example, or social experience "religion." Arduously it must build into its structure the contributions from the religious no less than those from noetic, moral, aesthetic, social, technical and economic experience, reckoning with values as conscientiously as with facts, and with faiths and attitudes as scrupulously as with the findings of physical and social science and the principles of mathematics. In so far—as Muirhead has recently pointed out—"idealist writers like Bradley and Bosanquet, realists like Professor Alexander and Professor Lloyd Morgan, pragmatists like Dr. Schiller, are all at one," and this common view indicates, on the part of English writers, "a wholly new appreciation of the independent and permanent significance of religious experience in human life."<sup>8</sup> So zealously have some of our scholars thrown themselves into the tasks of empirical description and interpretation, that as we shall later note, this really pre-metaphysical work has often seemed to them the Omega as well as the Alpha of legitimate inquiry.

<sup>8</sup> Editor's Preface to *Contemporary British Philosophy*, Second Series, pages 21 and 20, respectively.

## II

So far as the utilization of a strictly "scientific" and "empirical" psychology is concerned, the change just indicated came at about the beginning of the present century. Its initiating impulses and early creativeness were such as rapidly to bring results significant in both quantity and quality.<sup>9</sup> The past decade has yielded a refinement of earlier conclusions, some fresh studies, the discovery and preliminary utilization of novel methods, and more thorough appraisals of the degree of authoritativeness or finality to which psychological methods and conclusions may lay claim.

Critical surveys of important results to the dates of their publication are offered by three recent psychological works: J. B. Pratt's *The Religious Consciousness* (1920), R. H. Thouless's *An Introduction to the Psychology of Religion* (1922), and W. B. Selbie's *The Psychology of Religion* (1923). The first and third of these books are essentially eclectic as regards psychological method and standpoint as well as in respect to sources from which the data are derived. The second is significant primarily for its judicious use of a moderately psychoanalytic psychology. In this it contrasts favorably with E. D. Martin's *The Mystery of Religion* (1924). The latter leaves quite to one side the abundant literature of religious psychology and approaches the religious experience of the individual with an initial commitment to an extreme and, in the view of the present writer, a crude psychoanalytic doctrine rather than with a determination openmindedly to permit religious experience to dictate psychological conclusions. Of the books we have mentioned that of Pratt stands out not merely for its fine

<sup>9</sup> I have sketched this development in an article contributed to the *Journal of Religion* for March, 1926 and since included in a collection of essays, *Religious Thought in the Last Quarter-Century*, edited by G. B. Smith (The University of Chicago Press, 1927). The literature of the past decade in the general field of religious psychology was reviewed by the present writer in *The Psychological Bulletin*, Vol. 23, pp. 681-700.

judicious quality but also for its independent contributions to our scientific knowledge of religion. Important, for example, is its distinction between the conversion experiences which represent primarily an emotional perturbation or shift and those others in which the center of struggle concerns life's basic values and thus something quite objective and morally significant. This is in correction of Starbuck and other earlier writers who represented emotional conversions as thoroughly normal. In doing so, Pratt insists, they have taken as principles of human nature what in reality are the conventions of theology. Growing out of the same error is the systematization of the conversion process into distinct stages, and likewise the conclusion that "conviction" is normal and that "surrender" is necessary. A further fruitful discrimination of Pratt's is that between "objective worship," which "aims at making some kind of effect upon the Deity or in some way communicating with Him," and "subjective worship," which "seeks only to induce some desired mood or belief or attitude in the mind of the worshiper." Again, in five admirable chapters, Pratt describes and evaluates the milder forms of mysticism independently of the more extreme types. All in all, the volume is perhaps our best evidence that the psychological treatment of religion in general has outgrown its childhood and is now capable of making notable contributions to philosophy.

As regards special problems, perhaps the outstanding contribution is that made by J. H. Leuba in his *The Psychology of Religious Mysticism* (1925). Proceeding genetically, Leuba finds a continuity between the mystical ecstasy produced, among many peoples, by drugs and other physical means, the Yoga system of mental concentration, and the highest modes of mysticism. Proceeding comparatively, he finds striking resemblances between the outstanding aspects of the latter and various scientifically explicable

conditions, such as hysteria, neurasthenia, epileptic ecstasy, the trance (with its disturbances of time and space perception, its photisms and impressions of levitation, of increased moral energy and of ineffable revelation), and the sense of invisible presence. All of these problems are attacked with an analytic power and an expertness that have decidedly advanced the frontiers of our knowledge in a field as baffling as it is both practically and theoretically significant. By way of contrast with Leuba's essentially positivistic treatment, C. A. Bennett, in *A Philosophical Study of Mysticism* (1923), offers an interpretation in terms of what might perhaps be called a philosophical psychology. The analysis proceeds not from without but from within the experience itself. Following the view of Hocking,<sup>10</sup> Bennett urges that, while the mystic indeed thinks lightly of the values of the non-mystic or perhaps even neglects them altogether, he does so because of a conviction that this is the truest path to their ultimate conservation. The key to the life of the mystic is the principle of alternation: he turns away from the practical interests of life only to return to them with increased moral sensitivity, enthusiasm, and fruitfulness. For he has enjoyed a more comprehensive and vital contact with reality and has thus secured a broader vision and a restoration of power. In a recent paper,<sup>11</sup> Bennett similarly interprets worship as "a pause in the current of living," when the individual submits his spirit in holy awe to his God. In distinction from the worship of beauty, for example, religious worship restores

<sup>10</sup> In *The Meaning of God in Human Experience*. The date of this important book, 1912, places it outside the range of our direct survey. But we would here refer to one of Hocking's later works, *Human Nature and Its Remaking* (Yale University Press, 1918). The doctrine here set forth of a central instinct, conceived as a will to power, has been provocative. (Cf., for example, B. W. Brotherston's paper on "Religion and Instinct" in *J. of Rel.*, 1924, IV, 504-521.) Hocking's accounts of pugnacity, sex love, and ambition in their relation to Christianity are among the most profound discussions we have of these subjects.

<sup>11</sup> "Worship in its Philosophical Meaning." *J. of Rel.*, 1926, VI, 486-503.

moral energy, replacing heroic resolve with creative inspiration. Equally insistent on the spiritual indispensability of mysticism, but treating it explicitly from the viewpoint of the distinction made by Roman Catholicism between nature and supernature, are the profound writings of the late Friedrich von Hügel.<sup>12</sup> An authoritative account, primarily developmental, of the main types of mysticism in India is now available in Dasgupta's *Hindu Mysticism* (The Open Court Publishing Company, 1927). The *Proceedings of the Sixth International Congress of Philosophy* (New York, 1927) includes five important papers read at the special session devoted to mysticism. The paper by Starbuck exemplified a novel approach to the subject. By the method of correlations Starbuck attempted to secure evaluations, singly and severally, of the interacting elements in combinations of relations within experience. In his investigations, for example, he found a positive correlation of .40 between the degree of mysticism and "the amount of religiosity in home training"; a positive correlation of .68 in relating mystical experience with participation in religious activities; a positive correlation of .67 between such experience and belief in a personal God.

Stratton's book, *Anger: Its Religious and Moral Significance* (1923) is a careful study based upon a psychological examination of the sacred literature of the more important religions of the world. Mention should be made of the second edition of Leuba's *The Belief in God and Immortality* (The Open Court Publishing Company, 1921). This work is a valuable psychological and anthropological investigation of the differences, as respects both origin and function, between early, primary conceptions and essentially different ideas of later appearance and different mo-

<sup>12</sup> Cf. especially the two series, published in 1921 and 1926, of *Essays and Addresses on the Philosophy of Religion*, and the monumental study, *The Mystical Element in Religion as Studied in St. Catherine of Genoa and Her Friends*, 2 vol., 2nd ed., London, 1923.

tivation. It also represents pioneer work in the scientific application of statistical methods to the study of religious beliefs. Of late, moreover, new investigations have been made of the springs and psychological nature of religion. During the earlier years of the present century erotogenetic and psychoanalytic theories had as their rivals primarily two doctrines. The one was functional. It conceived religion as the consciousness of the dominant values of group life and traced the latter to such social actions as are necessitated by human needs and demands in the presence of specific environmental conditions.<sup>13</sup> The other construed religion in terms of man's universal tendency to transform and idealize his world through action, imagination, and scientific discovery—a tendency culminating in the idea of the Perfect and the Best.<sup>14</sup> Within the past decade or so Coe,<sup>15</sup> writing from the standpoint of a self-realizationist, has presented us with a variant of the latter doctrine. He thinks of religion in terms of a deep-lying impulse to the organization of an experience that is self-critical, self-controlling, and creative of social and spiritual values. The process is regarded as one in which objects of absorbing interest are idealized, in which "the social instincts" come to pre-eminence, and in which one "finds one's real world partly by having a share in making it real." More recently W. K. Wright<sup>16</sup> has contributed to the problem by borrowing the conception of sentiment from the psychology of Shand and

<sup>13</sup> See especially Irving King's *The Differentiation of the Religious Consciousness* (1905) and *The Development of Religion* (1910); also E. S. Ames's *The Psychology of Religious Experience* (1910). For an examination of this doctrine, and a further bibliography, reference may be made to the present writer's paper, "Functional Interpretations of Religion: A Critique" in *Essays in Honor of J. E. Creighton* (1917).

<sup>14</sup> For a richly documented and illuminating portrayal of this thesis we are indebted to G. M. Stratton's *The Psychology of the Religious Life* (1911).

<sup>15</sup> *The Psychology of Religion* (1916).

<sup>16</sup> In his volume, *A Student's Philosophy of Religion* (1922), and in a later essay, "On Certain Aspects of the Religious Sentiment," *J. of Rel.*, 1924, IV, 449-463.

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McDougall. The religious sentiment is construed as an organization of primary instincts and emotions (specifically: tender emotion, fear, intellectual curiosity, and gregariousness) centering about, and evoked into activity by, various objects, primary among which is "the Agency through which the conservation of socially recognized values is sought," namely, among advanced peoples, God. The organization is strengthened by imitation, suggestion and sympathy; it sweeps within its circle such complex emotions as admiration, awe, gratitude, reverence, along with other sentiments relating to the conservation of the higher values.

Thinkers whose interests center in social psychology, sociology, and social reform have naturally stressed the social import of religion. Shailer Mathews notes a distinct reaction on their part against identifying Christianity with socialism; he finds, moreover, that in general their results have of late been practical rather than theoretical—the more creative writers have tended to turn from general principles to the demands of concrete situations.<sup>17</sup> Conspicuous among these studies of religion from the "social" angle is *The Reconstruction of Religion* (1922) by the well known sociologist, Charles A. Ellwood. This book, though offering much that is useful in its chapters on the bearing of religion upon family, economic, political and social life, and though sound in its insistence that religion cannot spin practical programs from within itself but must derive them from the social sciences, suffers from fundamental confusions and ambiguities in basic principles.

More rewarding theoretically are such studies as E. E. Ericksen's *The Psychological and Ethical Aspects of Mor-*

<sup>17</sup> Cf. "The Development of Social Christianity in America" in *Religious Thought In the Last Quarter-Century*, p. 235. Reference may here be made to another paper of Mathews, "Theology from the Point of View of Social Psychology" (J. of Rel., 1923, III, 337-351), in which he contends that in distinction from philosophy, which is an unofficial and an individual interpretation, theology is an expression of group belief whose meanings must be sought by reference to social origins.

*mon Group Life* (1923) and A. W. Cook's *Sacraments and Society: A Study of the Origin and the Values of Rites in Religion* (1924). Both of these essays are written from a viewpoint aspiring to be at once functional, genetic, and social. The same is true of the publications of E. S. Ames, who defines religion as "the consciousness of the highest social values," and denotes as non-religious all persons who are indifferent to, or destructive of, the social well being. But does not such a virtual identification of religion with social morality simply brush aside features that have always been distinctive of religion? At any rate we find numerous critics who insist that Ames fails to note important differences between adherents of organized religions and devoted atheistical servants of society; that he neglects the basic fact denoted by Schleiermacher's "sense of dependence" and Pratt's "attitude to the ultimate Determiner of Destiny," as well as religion's characteristic assurance that in our finest social attitudes and moral endeavors "we somehow have the very Heart and Soul of things with us and are aligning ourselves with the Eternal." Moreover, do we in our loftiest attitudes take our values as elaborations or as revelations? In answer to his critics Ames has pointed out that in our modern age religion is increasingly identified with social idealism and that, whatever the particular form given to the Deity at different levels of culture, and whatever the symbol, "the substance of the idea of God, the objective reality, is the Spirit of the group whose awesome will is enforced through the commandments of social custom." Thus Ames is led to a position very similar to that of the Durkheimians. When charged with subjectivism and idea-ism, he has countered with the query: Is Alma Mater a mere idea of fiction? Is it subjective? Has it not all the reality of buildings, faculties, donors, students, etc?<sup>18</sup>

<sup>18</sup> See his papers on "Religion in Terms of Social Consciousness" and "The Validity of the Idea of God" in *J. of Rel.*, 1921, I, 264-270 and 462-481. Ames might be grouped with the instrumentalists of the Dewey school. Their

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This, however, does not satisfy Hocking. Not even for practical purposes, he contends, is the group spirit identical with God. From the group's demands upon the individual, from its powers and enforcements, there is always, factually or potentially, an appeal to another spirit of a more absolute nature. At best the spirit of one's social order is somewhat external, undiscerning, and lacking in appreciation and understanding of the spiritual needs of the individual; it is here also God's function "to do better." Again, "if there be in the universe an object upon which there can be reliance *without criticism*, a *valid* object of worship, and a source of *peace*, that object must be other than the social good." Further, "perhaps the most practical of all religious functions has been its function of assuring individual minds that they may and should aspire without limit;—if religion is to do this, it must involve the whole sweep of the objects of the mind that worships, and not any finite part of them. But the social spirit is a very finite portion of the cosmos."<sup>19</sup>

Humanism's voice, however, continues to be raised;<sup>20</sup> and the religious movements of positivism and ethical culture have vigorous champions. Critics, such as Muirhead, Bosanquet, and Webb, have assailed the standpoint of the latter on the ground that moral and religious attitudes must be sharply demarcated. In the words of Bosanquet:<sup>21</sup> "Morality lies essentially in a recognition of the 'ought-to-be'"

outlook is essentially positivistic. In M. C. Otto's *Things and Ideals* the anti-theistic note is clearly struck.

<sup>19</sup> Hocking, E. W.: "Is the Group Spirit Equivalent to God for All Practical Purposes?" *J. of Rel.*, 1921, I, 487. From a very different angle, and with a totally different philosophy, G. B. Smith has called attention to features of religious experience to which theism seeks to give rational form: "Is Theism Essential to Religion?" *J. of Rel.*, 1925, V, 356-377.

<sup>20</sup> Cf. *Humanism*, a late book by Curtis W. Reese (The Open Court Publishing Co., 1926) and a subsequent volume, under the editorship of Reese, and by the same publishers, *Humanist Sermons*.

<sup>21</sup> *Contemporary British Philosophy*, First Series, p. 59. The issue in question is one of the main themes of Bosanquet's *The Meeting of Extremes in Contemporary Philosophy* (London, 1921).

which is not . . . and therefore involves an individualistic conception of perfectibility . . . in particular finite spirits throughout a temporal progression. While religion, implying as a subordinate feature all that morality can imply of duty and self-improvement, is understood to lie essentially in a union by faith and will with a real supreme perfection in which finite imperfection, though actual, is felt to be transcended and abolished." Significant it is that in a recent essay, a leader<sup>22</sup> of the movement thus criticized, accepts this distinction between religion and morality and repudiates only the contention that the movement, at least as it is represented and championed by Felix Adler, was less than religious in Bosanquet's definition of the term.

From different angles it has been argued that theology and the philosophy of religion dissolve into psychology. Such, essentially, is the view of the psychoanalysts. Such also is the outspoken belief of a functionalist to whom we have already referred, E. S. Ames. Because "reality is given in experience," he urges, "the science of that experience," meaning psychology, furnishes "the reasonable and fruitful method of dealing with reality, including the reality of religion." But this line of argument proves too much; it engulfs physics and all sciences of nature and of man, as well as all philosophy, in psychology. Much more hotly debated, therefore, has been Leuba's thesis that belief in the gods or the *God of religion* (as distinct from the God of metaphysics) rests upon inductions drawn from religious, that is, from inner experience; that this realm "belongs entirely to psychology"; that "since the gods of religion are empirical gods they belong to science" and "theology is a branch of psychological science."<sup>23</sup> In the course of

<sup>22</sup> Stanton Coit in "Ethical Mysticism", a paper (also separately printed) published in *Aspects of Ethical Religion*, essays in honor of Felix Adler on the fiftieth anniversary of the Ethical Movement.

<sup>23</sup> These passages are from "Theology and Psychology", a chapter in Leuba's *A Psychological Study of Religion*.

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his writing, however, Leuba tends to say, not what a strict interpretation of the above phrases would imply (and what critics have primarily called into question), but rather that psychology, as any science, makes recourse to what Comte would call theological and metaphysical modes of explanation unwarranted. Thus, instead of a denial of an objectively real God we sometimes seem to have merely the contention that "inner experience" requires only "its god" and that the introduction of a real being, causally manifest in specific events of religious experiences, is unnecessary for psychological intelligibility and quite out of accord with the nature of science. Perhaps Leuba's critics have not always construed him generously but, if he has at times been misunderstood, as he himself believes, he is himself not entirely blameless, for to a philosopher's vision his account often appears blurred and confused. He does not seem clearly to appreciate the fundamentally abstract character, and the consequent philosophical limitations, of a positivistic or "scientific" psychology. To be sure, a superhuman spiritual order, or a God, could not as such be the object of psychological science, nor could it through the resources of the latter be demonstrated to exist. Even if transcendental causes or divine activity were operative in human experience, such agency could not, by the very nature of psychological science, come within its purview. Whether or no God exists is thus a question whose answer carries us far beyond any results which empirical accounts of conscious processes, taken as events, can yield.<sup>24</sup> Leuba's earnest championship of the powers of psychological science, however, is valuable in view of continuing arguments that certain features of various religious experiences, such as "genuine" conversion, for example, are "explicable" only

<sup>24</sup> The most pointed criticisms of Leuba's position are perhaps those of Pratt (*The Religious Consciousness*, pp. 454-8); of Waterhouse (*The Philosophy of Religious Experience*, pp. 98ff.; and of Hocking (in a review of Leuba, *J. of Phil., Psy., Sci. Meth.*, X, 328-333).

by reference to a higher Power. On the other hand, further work is needed in the determination of the powers and inherent limitations of a psychology of religion.<sup>25</sup> At the very least, it must live in comity with all other sciences and disciplines; it may not withhold its conclusions from assessment in the light of the results reached through other avenues of thought and experience.

S. Alexander has very properly insisted that "a philosophy which left one portion of human experience suspended without attachment to the world of truth is gravely open to suspicion; and its failure to make the religious emotion speculatively intelligible betrays a speculative weakness" (*Space, Time and Deity*, II, p. 353). It seems indeed even to be true that religious experience itself involves a demand for metaphysical justification. For, as Whitehead puts it (*Religion in the Making*, p. 85), "religion is the longing of the spirit that the facts of existence should find their justification in the nature of existence. . . . Science can leave its metaphysics implicit and retire behind our belief in the pragmatic value of its general descriptions. If religion does that, it admits that its dogmas are merely pleasing ideas for the purpose of stimulating its emotions"—an admission, of course, that religion absolutely refuses to make.

<sup>25</sup> Thoughtful essays on this subject have been published by H. C. Sheldon ("The Psychology of Religion Interrogated," *Princeton Theol. Rev.*, XX, 41-56) and W. R. Matthews ("The Psychological Standpoint and its Limitations," an essay in a co-operative volume, *Psychology and The Church* (1925), edited by O. Hardman). Leon Roth's admirable study "The Goodness of God" (*J. of Phil. Studies*, II, 507-515) brings him to the conclusion that "the novel approach to religious questions proposed by the psychological theologian" accentuates rather than solves his problem.

## III

The recent organization of the American Catholic Philosophical Association, with its quarterly organ, "The New Scholasticism" (beginning January, 1927) and the appearance (1927) of so substantial a volume as F. J. Sheen's *God and Intelligence in Modern Philosophy* are in themselves sufficient testimony of the vitality of a very important type of religious philosophy.

What is true of scholasticism holds also of the idealistic or speculative philosophy of such earlier writers as the brothers Caird and, later, of John Watson. Their religious doctrines received distinctive formulations, at the beginning of the second decade of our century, in the thought of W. E. Hocking, through his emphasis of worship and mysticism, and his skill in weaving the results of their analysis into a comprehensive account of concrete religious experience; of Josiah Royce, through his penetrating study of loyalty, the moral burdens of the isolated individual, and the saving power of the community; and, under the influence more notably of Hegel and Bradley, of Bernard Bosanquet. Truly remarkable for its distillation of thought is a later booklet by Bosanquet, *What Religion Is* (1920). Religion is discovered "wherever man fairly and loyally throws the seat of his value outside of his immediate self into something else which he worships, with which he identifies his will, and which he takes as an object solid and secure at least relatively to his private existence." The basic need satisfied by religion is that of salvation—salvation, be it noted however, not from pain, danger or hazardous enterprise, but from loneliness, isolation, and their attendant fears. Such salvation comes through dedicatory faith, through "giving ourselves to something which we cannot help holding supreme." Thus the substance of religion, for Bosanquet, is "justification by faith." The finite indi-



vidual, conscious of his unworthiness, inability and unreality, comes into union, through will and conviction, with a spirit which is a self-complete, perfect whole, a genuine individuality. Self-satisfaction on the part of the finite being is "the sin against the Holy Spirit." Evil is any experience conflicting with the complete service inspired by faith; sin is the persistence of that false or finite will which in genuine religion a man disowns.

Like Bradley, Bosanquet regards personality as a finite category, and hence he refuses to predicate it of the Absolute. This, and related considerations, impels him to differentiate between the God of religious experience, who is purposive and ethical, and the Absolute of philosophical contemplation, in which evil must be transformed or absorbed. So, in spite of the conviction that a man's religion offers him "the nearest approach to truth that he can make his own" and gives him "the clue to reality," Bosanquet tends to hold that in the last analysis it really discloses only "appearances," however high may be their degree of truth and reality. Herein his thought runs counter to that of C. C. J. Webb,<sup>26</sup> who, stressing the rational or common as against the exclusive features of personality, argues (as does Sir Henry Jones in *A Faith that Enquires*, 1922) that, if we are to be true to the attitudes and implications of religion, we must conceive God as both the Absolute and as personality. Webb likewise, however, recognizes the moral implications of finite selfhood, which therefore he refuses to relegate to the status of "appearance" or grant only an "adjectival" existence within the Absolute. To Galloway it seems highly doubtful whether this element of Webb's philosophy can exist in harmony with his absolutism. While agreeing that religion indeed takes God as the Ultimate Reality, Galloway construes this to mean "not that God is all that is real, but that He is the active

<sup>26</sup> In *God and Personality* (London, 1918).

Ground of the universe, the Supreme Spirit who is only limited in so far as He has limited Himself" (Mind, 1920, p. 478).

Those who think of reality in terms of individuated centers of consciousness, denying the ontological reality of everything save persons, and who describe religion in terms of personal relationships between finite spirits and God, have been not merely aggressive in their attacks upon the absolutists but also eager in the consolidation of their own positions. In contrast with the "atheistic personalism" of J. M. E. McTaggart, and the "purely ethical or teleological personalism" of Howison, their metaphysics culminates in a God conceived as ultimate in the sense of being the one, and the independent, causal ground of the world. The world is indeed given a measure of independence and of "otherness" from God, being regarded as the result of a free act of the divine creative will, but it is nevertheless said ultimately to be dependent upon Him. As grounded in a divine act, the human individual is described as more than a mere idea or mode of the divine consciousness, more than the thought which it expresses or by which it is apprehended. This outgrowth of the philosophies of Berkeley, Leibniz, Kant and Lotze has enjoyed strong championship on both sides of the Atlantic.<sup>27</sup>

Highly significant, moreover, are the considerations which A. E. Taylor<sup>28</sup> has been urging against absolutism, and his closely argued defence of theism. Sorley's *Moral Values and the Idea of God* (1919) is a carefully reasoned presentation of ethical theism. It "recognises the real world

<sup>27</sup> Among British writers may be mentioned James Ward, Hastings Rashdall, George Galloway, and C. A. Richardson. The most competent of recent American presentations of the doctrine is perhaps that in Albert C. Knudson's *The Philosophy of Personalism* (1927); somewhat earlier are E. S. Brightman's *Religious Values* and R. T. Flewelling's *The Reason in Faith*. Under the editorship of Flewelling, a quarterly journal, *The Personalist*, now in its eighth volume, is being published by the University of Southern California.

<sup>28</sup> Cf. the article on "Theism" in the *Encyclopaedia of Religion and Ethics*.

of persons as charged with the discovery and realisation of values, and it interprets the apparatus of life and its environment as subordinated to this supreme purpose" (p. 485); and it "issues in a view which finds the moral purpose of the world to be the purpose of a Supreme Mind and which regards finite minds as attaining unity with this Supreme Mind not by absorption of their individuality but by the perfecting of their character in co-operating with the divine purpose" (p. 473f.).

A. Seth Pringle-Pattison, though an early critic of Hegelianism's inadequate appreciation of the distinctness and value of the finite individuality, nevertheless refuses to pass to the extremes of the full fledged personalisms. His distinction between God and the Absolute is at times far from sharp. He is, however, clearly insistent that the divine is both immanent and transcendent.<sup>29</sup> God is described as creative, not in the sense of a creator *ab extra* (at this point there is criticism of Hastings Rashdall), but as a self-communicating life. The Absolute is generally conceived as "God-and-the-world," "a self-contained and internally organized whole, beyond which there is nothing." Though holding that individuals must not be regarded as mere channels through which "a single universal consciousness thinks and acts," Pringle-Pattison likewise rejects all views that deny "any self-consciousness except that which is realized in the finite individuals." When the extremes, personalism and Bradleyism, join in proclaiming that religion "is throughout a two-sided affair," Pringle-Pattison is glad to add his voice to theirs. In short, most readers of the latter's aristocratically conceived and executed book will agree with Bosanquet that, in its account of the relation of man to God, the "author is on a razor-edge balance" but that he

<sup>29</sup> We are in general referring to Pringle-Pattison's *The Idea of God in the Light of Recent Philosophy* (Oxford University Press, 1917), but at this point we have in mind also his essay, "Immanence and Transcendence" in *The Spirit* (1920), a collection of papers edited by B. H. Streeter.

is "finally influenced rather by ethical and conative than by religious and aesthetic experience" in determining man's degree of otherness and independence in relation to the divine life. The very conditions of human knowledge, Pringle-Pattison states, preclude us from comprehending how we may hold, as we feel constrained to do, both to ethical freedom and to the ontological dependence of man.<sup>80</sup>

Pringle-Pattison conceives the universe not as a finished reality of which man is a mere spectator but as a developing system whose culmination is the rational being. The latter is thus rooted in and organic to nature; and it is through him that nature finally acquires a consciousness of herself and a joy in her own being. Pringle-Pattison thus emphatically recognizes the principle of continuity while yet maintaining that this does not exclude, but on the contrary demands, the emergence of real differences. Here too he strives to preserve a "razor-edge balance." In his philosophy he thus exhibits an identity-in-difference, or a continuity-in-variation, with earlier idealisms.

There are those today, however, who contend for a much more radical discontinuity. In Lloyd Morgan's Gifford Lectures,<sup>81</sup> for example, we have a novel philosophy—a union of evolutionary naturalism and theism. Reality is portrayed as an ascending hierarchy of realities, each higher stage of which is "supernatural" to the preceding. That is, the higher stages are not implicit in the lower but genuinely emergent therefrom, and this relation obtains throughout the sweep of evolution, with its various levels of the inorganic, organic, psychic, rational and self-conscious. This entire development, Morgan teaches, must be described and empirically interpreted by the methods of

<sup>80</sup> Valuable symposiums covering issues touched in the above paragraph have been published (in two supplementary volumes, 1918 and 1924, respectively) by the Aristotelian Society: "Do Finite Individuals Possess a Substantive or an Adjectival Mode of Being" and "The Idea of a Transcendent Deity: Is the Belief in a Transcendent God Philosophically Tenable?"

<sup>81</sup> *Emergent Evolution* (1923) and *Life, Mind, and Spirit* (1925).

naturalism. But, while this holds true of each and every detail, the process as a whole is ultimately intelligible only as dependent upon Divine Purpose. "Spirit" is placed by Morgan neither within nor at the summit of the ascending hierarchy of realities. It is not conceived as an empirical quality towards which there is ever a *nisus*. Rather is it represented as that of which all the stages of the process are manifestations under the conditions of space and time. Thus the religious attitude transcends the moral attitude or any relation towards particulars or members of the evolutionary process; it is described as the acknowledgment of the Divine Purpose. In this view, the "ethical value of what the right-minded social person speaks of as 'playing the game' is not lost; the spiritual value of doing so in accordance with Divine Purpose, or "in God's sight," is gained" (*Life, Mind, and Spirit*, p.x).

Abandoning the theistic element of Morgan's philosophy, S. Alexander has presented, with magnificent sweep and with the utmost refinement of detail, a metaphysics of emergence moving from space-time to deity. God becomes the whole, infinite world "as possessing the quality of deity" or "with its *nisus* towards deity." Deity is an empirical quality, the "mind" lodged in a portion of the world, which, if we are to continue the analogy, might be conceived as the "body," "God's body"; Deity is an empirical quality hereafter to emerge, its promise and potency being some actual complexity or refinement of mind to which the fecund processes mothered by space-time have given birth. Deity is thus a quality transcending goodness, truth, and beauty, though in that particular line of development of which they are the actualized culminations. God may be termed good only by license, only if, by reference to one of the highest of the actually emerged values, we intend to suggest his perfection, the specific character of which, transcending as it

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does all actualized emergents, lies beyond our ken. In another sense, God as the whole universe within which there is a soul or *nisus* towards deity, includes both good and evil. Yet as deity he is on the side of goodness for, on the one hand, this has a character of cosmic permanence when compared with evil ("morality is the nature of things") and, on the other, it is from the line of goodness that deity is to emerge. Thus, for Alexander (in his *Space, Time and Deity*) religion is "the sense of outgoing to the whole universe in its process towards the quality of deity; and just as Space is apprehended by intuition, sensible qualities by sensation, universals by thought, and values by appreciation, so God is apprehended cognitively through the religious emotion by the assurance we call religious faith" (II, p. 402).

Profoundly influenced by the doctrine of creative evolution as expounded by Bergson, H. Wildon Carr has described the conception of God which he finds implied therein. This conception, he writes, "is vague and formless. In the consciousness of our own finiteness, and in the perception that our knowledge is relative to our actions and that our actions are restricted in form and limited in range, there arises the idea of an encompassing existence from which we derive the spur and direction towards defined actions. Our experience seems to indicate an impelling force of external origin, a striving which is causing us to strive. We can fashion no likeness of it, not because to liken the supreme being to some earthly shape savours of sacrilege, but because man himself with all his furniture of aesthetic imagery is only one mode of this divine being. In contrast, therefore, to the God of the ontological argument whose idea includes existence, the God of creative evolution is existence which refuses to be comprehended under any idea" (*Changing Backgrounds in Religion and Ethics*, p. 86).

In his recent publications (see especially *Religion in the Making*) Whitehead sides with Bosanquet in conceiving the basis of religion to be justification; he places the emphasis somewhat differently, however, when he specifies religion's primary virtue to be sincerity. Succinctly put, religion for him "is the force of belief cleansing the inward parts" (p. 15). Only in its first glimmerings and in its decay is it, as the functionalists have held, primarily a social phenomenon, dominated by ritual and emotion. In its prime it is, as James maintained, what the individual "does with his own solitariness." But, in further departure from functionalism, Whitehead speaks of ritual as "the primitive outcome of superfluous energy and leisure," having "no direct relevance to the preservation of the physical organisms of the actors." With Alexander he thinks of religious experience as the "direct apprehension of a character exemplified in the actual universe," but he differs sharply in teaching that the God of rationalized religion is not temporal. He is the "actual but non-temporal entity whereby the indetermination of mere creativity is transmuted into a determinate freedom." He is not the totality of being, for he excludes evil: he is "a certain dominant and sustaining character or order of all being whereas evil is disorganization." Thus, God's goodness is his limitation. On the one hand, God transcends the realm of existence; indeed, apart from Him there would be no actual world. Moreover, he is "the binding element in the world"; the function "by reason of which our purposes are directed to ends which in our own consciousness are impartial as to our own interests"; "that element in life in virtue of which judgment stretches beyond facts of existence to values of existence." On the other hand, "apart from the actual world with its creativity, there would be no rational explanation of the ideal vision which constitutes God."

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Two admirable volumes,<sup>82</sup> written by Henry Nelson Wieman under the influence particularly of Hocking and Dewey, define the religious attitude as the "mergence of the individual with the total movement of things," the "sense of dependence upon the whole and participation in the working of this total movement." God is by definition—and really He may be much more—that "Something of supreme value" in the universe which is "more critically, ultimately and constantly important for human welfare" than aught else. That this Something, God, exists is indisputable, as is the fact that He is good beyond compare. But further than this, knowledge, while not available in immediate experience, may be attained through the resources of science and philosophy operating with the material of specific experiences. Religion is not cut off from the truth it requires, but it requires more truth than it possesses; and the path for the acquisition of this, the most precious of all truth, leads out from worship and experimental living.

Thus Wieman belongs to the religious realists. But does he give sufficient credit to the naive, unreflective religious consciousness? Those of Rashdall's persuasion would answer: Far too much; all religious truth is mediate, the product of inference and reflection on experience. Macintosh,<sup>83</sup>

<sup>82</sup> *Religious Experience and Scientific Method* (New York, 1926) and *The Wrestle of Religion with Truth* (New York, 1927).

<sup>83</sup> *Theology as an Empirical Science* (New York, 1919) and *The Reasonableness of Christianity* (New York, 1925). In part the question at issue in the above paragraph involves that of whether religious experience itself, prior to all theologizing and philosophizing, includes more or less explicit cognitive elements. Present psychology here tends towards an affirmative reply. Collingwood makes creed, that is a view of the universe, the center and foundation of religion, and denies that theology is simply a superstructure erected on the basis of experience. (Cf. *Religion and Philosophy*, London, 1916.) According to Tennant's review in *Mind* (N. S. 31, p. 229), W. R. Matthews, in his *Studies in Christian Philosophy* (The Boyle Lectures, 1920) "holds that there is no such thing as religious experience that is prior to the fashioning of theological ideas, and that whatever is *sui generis* in religious experience is to be sought, not in the affective and conational elements which such experience contains, but in the ideas which are employed to colligate them and to assign them a causal explanation."

on the other hand, would answer the question in the negative. In his view, life need wait upon the development of explicit, critical scientific methods neither for religious nor for other knowledge. The existence and the essential features of God are both known in living experience. Theology must and may be converted from a speculative into an empirical science. As such it assumes the existence of the object it investigates. Our pre-theological assurance of God's existence is gained through an intuition which involves "perception in a complex"—a form of intuition exemplified also in the awareness of one's own existence, of the existence of other persons and of physical objects. At the very beginning of theological inquiry, moreover, one realizes that God "is great enough and good enough to enable us, when rightly related thereto, to be spiritually prepared for whatever experience we may have to meet." The affirmations of experience should wherever possible receive verification and expansion through scientific methods, but the ultimate court of appeal is nevertheless experience itself.<sup>34</sup> Yet the experience to which this appeal must be made is that of those who make what is described as the "right" and "dependably successful" religious adjustment. If we inquire wherein "right adjustment" consists we are told that for this knowledge we must go to experience. Thus, in spite of his attempted objectivism, Macintosh ultimately espouses a form of subjectivism. Moreover, as we have put it elsewhere: "The attributes of God are determined in the last analysis solely by reference to human needs and experiences, and hence are interpreted pragmatically. But precisely by what logic are certain experiences singled out as caused by God and therefore as revealing His nature, whereas others are ascribed to natural or to human agencies? Moreover, if we know, as it is argued, that the

<sup>34</sup> In his *Religion and the Mind of Today*, Leighton defends intuition as a valid form of knowing but also requires that all intuitions justify themselves "by fitting harmoniously into the interpretation of reality as a whole" (p. 192f.).

devil does not exist, so that evil choices are an expression of human volition, why should we not similarly hold that our aspirations for the good likewise grow out of experience or emanate from the human will?"

Temple's *Mens Creatrix* (London, 1917) declares that the problem of evil is the nub of the philosophy of religion, and in this A. E. Taylor agrees. For, the undeniable and insistent reality of evil, as a fact both of inner life and of outer nature, makes acute the question, Does God exist? We face not alone the problem concerning the origin of evil but, once we accept the reality of God, also that concerning its good. As to this Temple maintains, and again Taylor assents, that "the victory of good over evil is itself at least one of the greatest goods; and *this* good would be impossible in a world where there was no evil to overcome." According to Bosanquet, religion, while to some extent transcending the conflict between good and evil, nevertheless remains determined by this transcendence. Hence our consciousness of the Absolute must be a somewhat different mode of awareness than religion affords. Describing this consciousness Bosanquet writes: "We are aware of a strength and amplitude of the world. . . . The universe, we feel, though it is a rough place, and not exactly fitting into the frame of good as against evil, is great and splendid in ways that are to us inexhaustible. . . . The universe is the magnificent theatre of all the wealth of life, and good and evil are within it."<sup>85</sup> Very different, again, are White-

<sup>85</sup> Bosanquet, B., *The Value and Destiny of the Individual*, p. 311f. A somewhat kindred spirit, Josiah Royce, gave much attention in his later works to the doctrine of original sin. He interprets this as a moral burden which inevitably falls upon the finite individual in the process whereby he attains to self-consciousness. The individual comes to feel a lack of and need for a principle that will satisfy, energize and harmonize his own nature and bring him into the requisite union with his fellows. This saving principle is that of loyalty; it must be vouchsafed to man from without and from above, through a medium that expresses the spirit of a "beloved community." Then there is the sin of the traitor, of him who is wilfully disloyal to the cause he has espoused. Here salvation comes through the sacrificial devotion of some loyal

head's remarks on the topic of evil. In contrast with the good, which is positive and creative, evil, he explains, is positive and destructive. Even evil, however, in "its aspect of triumph in its enjoyment," is good; and, temporally regarded, evil is essentially unstable—herein, indeed, is evidenced the fact of a moral order in the world. Again, through destruction, degradation or elevation, evil promotes its own elimination. To illustrate: "A species whose members are always in pain will either cease to exist, or lose the delicacy of perception which results in that pain, or develop a finer and more subtle relationship among its bodily parts."<sup>86</sup>

But does an acknowledgment of evil, of a degree of independence on the part of finite individuals, of the fact that religion is "throughout a two-sided affair," of the conclusion that religion only partially transcends the active dualism between good and evil and that all categories of practice are limited—does an acknowledgment of one or another of these or other points indicate the finiteness of the divine being? A growing number has followed J. S. Mill and William James in so believing. We think, among the popular writers, of H. G. Wells (*cf.* his *God, the Invisible King*). Among technical philosophers those personalists who at all admit the reality of God are very generally committed to the thesis that He is in some respects limited, though this limitation is described as a self-limitation arising from the nature of God as creative, out-going love, as a spirit of social participation and self-communication. Other thinkers see in pantheism an all-engulfing and therefore altogether repelling doctrine, and hold, with Waterhouse, that any "philosophy in which God is not in some sense finite is pan-

member of the community whose deeds reclaim the evil doer and create a finer community. Hastings Rashdall (*Mind*, N. S. 23, p. 415), has criticized this doctrine of "objective atonement."

<sup>86</sup> Whitehead, A. N., *Religion in the Making*, p. 96.

theistic" (*Modern Theories of Religion*, p. 296). Speculative idealists like Bradley and Bosanquet distinguish between God and the Absolute and ascribe self-completeness, perfection, and full reality to the latter alone. Increasing deference to empirical considerations has led Balfour, Carr, Rashdall and others to endorse the words inscribed on the scapula which Pascal wore near his heart: "*Dieu d'Abraham, Dieu d'Isaac, Dieu de Jacob—pas le Dieu des philosophes et des savants.*" "Experimental religion," Macintosh contends, repudiates the view that God is absolutely unconditioned. He may be called infinite only hyperbolically, to indicate his freedom from all limitations that would render him inadequate as "the Object of absolute dependence and worship." Ranged over against the large company we have indicated, however, there are other leaders of thought who refuse to admit that the demands of the awakened soul or of philosophic doctrine can be satisfied by any being who is limited either as to power or goodness, who is dependent for his existence or his nature upon any other reality, or who is involved in struggle. In this refusal Webb and Pringle-Pattison are joined by Temple and A. E. Taylor, as well as by Radhakrishnan, the latter of whom has made this problem the theme of his *The Reign of Religion in Contemporary Philosophy* (London, 1920).

Kant once declared that without a belief in a future life religion cannot be conceived to exist. If this statement is to escape wreckage by familiar facts, we must interpret it to mean that immortality is a rational implication of religion. Since it was made, however, many religionists and philosophers have tended toward a diminished interest in and emphasis upon the doctrine of immortality.<sup>87</sup> Toward

<sup>87</sup> As regards American men of science Leuba has presented valuable statistics in his *The Belief in God and Immortality*. On p. 181 n. of this book he cites studies of other investigators who dealt with different groups. Recent Ingersoll lecturers at Harvard University differ in their estimates as to how firmly rooted in human nature the desire for personal immortality is. For

the close of his colossal work, *Space, Time and Deity*, Alexander admits (II, p. 424): "Should the extension of mind beyond the limits of bodily life be verified, so that a mind can either act without a body or may shift its place to some other body and yet retain its memory, the larger part of the present speculation will have to be seriously modified or abandoned." In his *The Idea of Immortality* (Oxford, 1922), Pringle-Pattison bases immortality on the existence of a beneficent and loving God. But, one might urge, even granting God's existence and granting further that He has an interest in the continuance of human individuals, how may we be certain of immortality when we consider that evil is real and that God's desires are therefore sometimes not fulfilled? So Sir Henry Jones (in *A Faith that Enquires*, London, 1922) makes the point that abandonment of the belief in personal immortality must carry with it that of belief in a God of limitless love and power. Galloway's monadological idealism of course gives to the finite spirit a place of distinct worth and relative independence in relation to both the realm of nature and the Supreme Mind, yet it withdraws from the contention that an exclusively metaphysical or psychological argument can prove or even establish the probability of personal immortality.<sup>88</sup> Rather does it base immortality on the demands

thoughtful discussions of various phases of the general problem of immortality the reader may turn to four of these lectures: *Living Again* by C. R. Brown; *Immortality and Theism* by W. W. Fenn; *Immortality and the Modern Mind* by Kirsopp Lake; *The Sense of Immortality* by Philip Cabot. (These four books were published, in 1920, 1922, 1922, and 1924 respectively, by the Harvard University Press.)—J. G. Frazer's Gifford lectures (1911-1912) on *The Belief in Immortality and the Worship of the Dead* are a comprehensive study of an important group of customs and beliefs among primitive peoples.

<sup>88</sup> More importance is attached to these considerations by Tsanoff who writes (*The Problem of Immortality*, New York, 1924, p. 372f.): "Worth-attainment, striving after perfection, conservation of value, moral aspiration cannot be frustrated in the universe. We reflect that they are all essentially personal in character; that, unlike material things, persons are not in any sense compounds, but individualized systems; that if value is to be conserved, the character of the universe must include personal immortality."

of immanent justice and on the moral consciousness generally, with its insistence upon coherence and harmony in a moral universe. Webb's outlook is less determined by ethical experience; what militates against the supposition that an individual "is not secure in God" is for him primarily a "consciousness of religious value in our unique individuality." . . . Spiritualistic literature has abounded, but there has been no appreciable tendency on the part of either psychologists or philosophers to hold that metapsychic phenomena prove the fact of immortality, though there are those who believe that we have well attested facts which establish at least the very high probability of a period of survival after death in the case of certain spirits.<sup>89</sup>

We are today witnessing intense activity on the part of a group who refer to themselves as fundamentalists. Despite psychological science, they insist that we possess truths that in no wise reflect human insight or personal-social experience but that have emanated directly from the mind of a transcendent God as a pure revelation to man. Despite historical science, they clutch to bodies of fact long discredited by empirical methods. Despite scientific conclusions generally, they so revere certain doctrines—some of them incomprehensible save only to students of the history of thought and culture—as to deem them essential for salvation from the fires of hell. Ritualistic practices which, to anthropologically and sociologically oriented minds, cannot have other than a symbolic significance, are regarded as essential steps in the only path to salvation and eternal bliss. In sharpest opposition to such a point of view is that of thinkers who, starting from what man has found to be true or highly probable, arduously forge ahead that they may bit by bit dispel the outer area of darkness; or, to put the

<sup>89</sup> Special attention may be called to a symposium recently held at Clark University and published under the title *The Case For and Against Psychical Research*.



matter differently, who, through intellectual strategy and heroic effort strive to transform a view that is dim, confused and patchy into progressively clearer, fuller and more substantially buttressed knowledge. Tawney and Lake have cogently pled for an attitude of experimentalism in religion,<sup>40</sup> and, indeed, most of the writers to whom we have called attention in this paper, however they may differ in their conclusions, are at one in taking their cues from science and human experience.

But whereas the conflict between fundamentalism and the various forms of liberalism, including experimentalism, rages only on the arena of life, there is today another controversy that occupies also the forum of scientific debate, namely, the issue between theism and a certain type of humanism. Theism grows out of experiences of dependence and ineptitude, and involves attitudes of faith, trust, worship and reverence towards the most real being, the "Determiner of Destiny"; the humanism in question, construing theism as a lingering survival of antiquated views, identifies religion with social idealism, and, metaphysically, with meliorism. But of this controversy some reference was made above, and an admirable discussion may be found in D. S. Robinson's recent book, *The God of the Liberal Christian*, which, though liberal in outlook, yet refuses to equate religious with social experience or to identify religion with the moral quest.

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<sup>40</sup> Cf. Tawney, G. A.: "Religion and Experimentation," *Int. J. of Eth.*, XXXVI, 337-356; and Lake, Kirsopp: *The Religion of Yesterday and Tomorrow*, New York, 1925.

PHILOSOPHY OF THE EXACT SCIENCES:  
ITS PRESENT STATUS IN GERMANY<sup>1</sup>

I

**B**ETWEEN the exact natural sciences on the one hand, and the dominant philosophy on the other, there is still lacking in Germany that intimate connection which is really desirable in the interests of both. In part this state of affairs must be charged to the representatives of natural science. Because their subjects are highly specialized, they easily lose a view of the whole and then face philosophical problems quite without comprehension. Nevertheless it is precisely in recent years that a lively philosophical interest is appearing among German physicists and mathematicians. Indeed a number of them, as we shall see, have themselves done significant philosophical work on the borderlands of their sciences.

In contrast herewith, it must be admitted that it is particularly among those representatives of German philosophy who are playing a leading rôle in the philosophical life of Germany that we find but a slight insight into those philosophical problems which emerge from the work of mathematicians and physicists. Even today we have the spectacle of philosophers who lay claim to a guardianship over natural scientists. We still find philosophers rejecting scientific results which are verifiable only through experimentation or mathematical calculation because these results conflict with the allegedly apodictic truths of phil-

<sup>1</sup>Translated from the German by Edward L. Schaub.

osophy. Another favorite attitude of technical philosophers expresses itself in the assertion that the conclusions reached by natural science through painstaking experimental labor are but a confirmation of the results which the philosopher has long since attained through pure thought.

In antithesis hereto is the philosophical work which it is our purpose to report. It has been carried on in close junction with the exact sciences, partly by the representatives themselves of these sciences, and partly by such philosophers as have included this subject in their studies and are therefore able comprehendingly to follow the developments in this field.

This latter group of investigators may not really be called a school of philosophy. Nevertheless, all of the scholars that here deserve mention hold certain fundamental principles in common. In the first place, they repudiate the premature construction of a philosophical system. Further, they are at one in their unreserved respect for the conclusions of natural science. This does not mean that they unconditionally recognize as valid everything which any scholar proclaims as the outcome of his investigations. But, in their view, the results of a science must be confirmed or refuted, as the case may be, by the methods and devices of this science itself.

One representative of this movement, Hans Reichenbach, has at times described its method as "scientific-analytical"; another, Kurt Lewin, has developed a sort of program of what he designates the "comparative doctrine of science."<sup>2</sup> He delimits the science of knowledge from other sciences, more especially from epistemology and logic. It becomes manifest, however, that, in its present stage of development, epistemology in particular shares with the science of knowledge a number of essential methodological traits. Among these, in addition to the

<sup>2</sup> *Über die vergleichende Wissenschaftslehre*, reprinted from the Symposium, Erlangen, 1926.

features already referred to, are a relatively strong emphasis upon "description" as contrasted with theory, and a preference for specialized problems, in distinction from general and fundamental questions which in consequence tend to recede into the background.

## II

The publications which I must consider in this paper fall into two entirely distinct groups. The one is linked with investigations of the foundations of arithmetic and has more the character of logic; the other deals with the bases of physics (including applied geometry) and is more epistemological in its nature. We will first take up the former of these groups of studies.

In their philosophical aspects, the foundations of mathematics, and especially of arithmetic, have in the past been examined for the most part with a view to determining whether arithmetic is an independent science with a thought structure all its own, or whether it is but a branch of logic. This question continues to play a rôle even today. But in general we have in more recent years passed, in this field, to more concrete and specific questions.

As regards Germany, three tendencies demand our notice—tendencies which in part originated in this country and in part, at the very least, here found adherents and collaborators. We would mention first of all the intuitionists. Their leader is the Hollander, L. E. J. Brouwer, but they have also found a zealous champion in the German mathematician, Herman Weyl. Brouwer has presented his ideas in a long series of essays published in various mathematical journals. One of his studies of importance philosophically has appeared in the English language.<sup>8</sup> Weyl has expounded his and Brouwer's views in his essay, *Über*

<sup>8</sup>"Intuitionism and Formalism," *Bulletin of the American Mathematical Society*, Vol. 20, 1913.

*die neue Grundlagenkrise der Mathematik*,<sup>4</sup> in a wider framework he presents them, together with the other tendencies which it will devolve upon us to notice, in *Die heutige Erkenntnislage in der Mathematik*,<sup>5</sup> and in *Philosophie der Mathematik und der Naturwissenschaft*.<sup>6</sup> A cursory exposition of intuitionism, based however not on Brouwer but on Weyl, has been furnished by Betsch in his *Fiktionen in der Mathematik*.<sup>7</sup> Perhaps the best brief presentation of Brouwer's ideas is that in Fraenkel's book *Zehn Vorlesungen über die Grundlegung der Mengenlehre*.<sup>8</sup> Finally we would also mention a short essay which, in a popular but very clear manner, furnishes orientation on the controversy between the intuitionists and the formalists: *Formalismus und Intuitionismus in der Mathematik*,<sup>9</sup> by Baldus.

In the philosophical world, the doctrine of Brouwer has become known primarily because it contests the validity of the logical principle of the excluded middle. To understand this we must know that, as regards the relation of logic to mathematics, Brouwer espouses a view antipodal to that, for example, of Frege and Russell. Whereas the latter hold that mathematics is a branch of logic, Brouwer maintains, conversely, that logic has its foundations in mathematics. He declares that the Aristotelian logic originated by abstraction from the mathematics of finite classes and was then erroneously universalized. The transfer of logical principles from finite to infinite classes leads at times to meaningless proportions—in particular is this true in the case of the just mentioned principle of the excluded middle. The question whether a class includes things of a given nature may, in the case of a finite class,

<sup>4</sup>*Mathematische Zeitschrift*, Bd. 10, 1921.

<sup>5</sup>Reprinted from the Symposium, Erlangen, 1926.

<sup>6</sup>*Handbuch der Philosophie*, München und Berlin, 1927.

<sup>7</sup>Stuttgart, 1926.

<sup>8</sup>Leipzig, 1927.

<sup>9</sup>Karlsruhe, 1924.

be answered, theoretically, by an examination of every single element comprised therein. Either we thus find a thing with the requisite character or we learn that the class contains none such: *tertium non datur*. Quite otherwise in the case of an infinite class. Here it may be true that we are neither able to prove that no element of the requisite character is comprised within the class nor to exhibit such an element, that is, to construct it. According to the classical logic, one might in a case of this sort nevertheless affirm that such an element either does or does not exist. This contention is regarded by Brouwer as meaningless, and all of the conclusions derived therefrom he considers false. This will further explain why he rejects the thesis that all mathematical problems are solvable. Moreover, the concept of "existence" in mathematics thus acquires a new meaning. In distinction from those who hold that (mathematical) objects may be said to exist if they are consistent with mathematical axioms Brouwer predicates existence of only such objects as may be constructed.

The possibility of such construction, however, presupposes an intuition or *Anschauung*; hence the name "intuitionists." The primal intuition of mathematics is expressed in the inference from  $n$  to  $n + 1$ , in so-called "complete induction." By its aid the mathematician, according to Brouwer, can even secure an infinite number of conclusions.

We may not here enter upon the consequences of this doctrine for mathematics. For philosophy its chief feature is its critique of logic. To be sure this critique has not as yet found wide acceptance in philosophical circles. Nevertheless Heinrich Scholz refers to a *Grundlagenkrise der Logik* in a book, shortly to appear, wherein Brouwer's criticism of the Aristotelian logic is brought into parallel with that of Hegel.

In contrast with the intuitionism of Brouwer and Weyl

we find the doctrine of the so-called "formalists," whose leader is the well known Göttingen mathematician, David Hilbert.<sup>10</sup> Among his collaborators we should mention W. Ackermann,<sup>11</sup> Paul Bernays,<sup>12</sup> and J. v. Neumann.<sup>13</sup> The aim of the "formalists" is very similar to that of the intuitionists. They desire, as Hilbert puts it, "definitively to banish from the world all universal doubt as regards the trustworthiness of mathematical inference." In common with the intuitionists, the members of the Hilbert school regard it as impossible to base mathematics exclusively on logic. Moreover, the latter also contend that mathematics requires "certain extra-logical, concrete objects present to intuition, prior to all thought, as immediate experience." Mathematical conclusions are certain only so long as the mathematician restricts himself to "finite" assertions concerning these objects and their combinations, that is, to assertions which may be verified through a finite number of steps. In so far, the formalists and intuitionists seem to be at one. Whereas, however, Brouwer and his adherents are thence led to reject all mathematical propositions which cannot be thus established, Hilbert advances a procedure whereby it is possible to establish also "transfinite" propositions in a finite manner. This procedure is an adaptation of one which mathematicians have long employed with great success in progressively extending the concept of number or in introducing into geometry so-called "ideal" elements (such as infinitely distant points,

<sup>10</sup>The most important of his works relating to arithmetic are: *Über die Grundlagen der Logik und Arithmetik* (Verhandl. d. III intern. Mathematikerkongresses zu Heidelberg, 1904); *Neubegründung der Mathematik*, Abhandlung a. d. math. Seminar der Hamburger Universität, I, 1922; *Die logischen Grundlagen der Mathematik*, Math. Annalen, Bd. 88, 1923; *Über das Unendliche*, Math. Annalen, Bd. 95, 1925.

<sup>11</sup>*Begründung des tertium non datur mittels der Hilbertschen Theorie der Widerspruchsfreiheit*, Math. Annalen, Bd. 93, 1924; *Die Widerspruchsfreiheit des Auswahlaxioms*, Nachrichten der Göttinger Ges. d. Wissenschaften, 1924.

<sup>12</sup>*Zur Hilbertschen Beweistheorie*, Math. Zeitschrift, 1926.  
d. deutschen Mathematikervereinigung, Bd. 31, 1922.

<sup>13</sup>*Zur Hilbertschen Beweistheorie*, Math. Zeitschrift, 1926.



straight lines and planes). We here have to do with deliberate fictions devised in order to guarantee the universal validity of certain simple laws, as for example the axioms of projective geometry. In Hilbert's view (which is at this point in sharp contrast with that of Brouwer), we may be sure that this procedure is justified if (1) the extended system is free from contradiction and (2) the procedure really leads to the desired result. In order to demonstrate that the enlarged system reached through transfinite modes of inference is free from contradiction, all of mathematics is "formalized." That is to say, the meaning of mathematical symbols is disregarded and every mathematical proof is thought of as a figure constructed from certain fundamental elements in accordance with determinate rules. (These symbols, of course, must include not merely some of a strictly mathematical lineage but also others involved in logical calculation.) Mathematics thus formalized is constituted the object of a new branch of science, "metamathematics." In the latter, which employs only finite modes of inference, it is demonstrated that in formalized mathematics no contradiction can arise. Thus in mathematics we may without hesitation employ, among other principles, that of the excluded middle, inasmuch as we may be sure that we will not, through its use, land in contradiction. We cannot enter upon the interesting philosophical questions to which this theory gives rise. In concluding our account we would but characterize the two main tendencies already described by an analogy from political life. If intuitionists have been characterized with a certain propriety as revolutionists who overturned the *ancien régime*, Hilbert might be compared with a Napoleon who, without regard to considerations of legitimacy, established, through a brilliant political stroke, a new order whose success is the substitute for legitimacy.

The third distinguishable tendency in investigations of

the foundations of arithmetic continues the work of George Cantor, the originator of the theory of classes. That arithmetic might be based on the theory of classes was known even to Cantor. However, the contradictions which revealed themselves in the further development of this line of thought generated doubt with respect to the solidity of this basis. Ernst Zermelo, in a number of treatises published in 1908 and 1909, was the first to set up a system of axioms from which all of the then known theory of classes could be deduced with the exception of the antinomies. In my dissertation of 1910, I myself showed that the doctrine of integral numbers might even be based on a narrower system of axioms. This axiomatization of the theory of classes has in recent years been continued more especially by Adolph Fraenkel.<sup>14</sup> Of late, however, serious doubts have been urged (particularly by J. v. Neumann) against the possibility of such an axiomatization. The controversy thus arising has not as yet been terminated.

We must now refer also to a number of logical-mathematical pieces of work which are more or less closely connected with the researches already mentioned without, however, belonging to any one of the three tendencies described. The logical theory of axiomatics is discussed by Paul Hertz in two treatises on *Axiomensysteme für beliebige Satzsysteme*.<sup>15</sup> This interesting attempt remains, thus far, incomplete. More psychological in character is a work by the same author on *Über das Denken*.<sup>16</sup> A number of investigations by Walter Dubislav relate to *Das Verhältnis der Logik zur Mathematik*. An essay under this title<sup>17</sup> has as its chief aim a new and original proof that mathematics is not deducible from logic. To me this

<sup>14</sup>Cf. his *Einleitung in die Mengenlehre*, 3. Aufl., Berlin, 1927; also the above mentioned *Zehn Vorlesungen*; in addition, a number of scattered treatises.

<sup>15</sup>Mathematische Annalen, Bd. 87, 89, 1922-23.

<sup>16</sup>Berlin, 1923.

<sup>17</sup>In Annalen der Philosophie, Bd. V, 1925-26.

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proof seems unsuccessful. In distinguishing logic from mathematics it is a frequent practice to introduce the Kantian classification of judgments into "analytical" and "synthetical." Dubislav discusses this classification in an essay, *Über die so genannten analytischen und synthetischen Urteile*.<sup>18</sup> He analyzes a number of attempts to improve this classification and concludes with a proposal for a classification relative to a system of axioms. To differentiate mathematics from logic such a relative classification is certainly not adapted. Finally, we would mention another publication by the same writer, *Über die Definition*,<sup>19</sup> which deals with related questions. To the problem of definition Rudolph Carnap likewise turns in his brochure, *Über eigentliche und uneigentliche Begriffe*.<sup>20</sup> In a more comprehensive work, as yet unpublished, he is undertaking to erect a system of the sciences on the basis of a construction of concepts.

As is well known, Hans Vaihinger, in his *Philosophie des Als-ob*, relied in a particular degree upon the fictitious character of certain mathematical concepts. He utilized, as his most authoritative witness, primarily the celebrated geometer, Moritz Pasch, though in this, to be sure, he was scarcely justified. Pasch, in numerous philosophical discussions of the nature and foundations of mathematics, adopted a distinctly empirical standpoint. As his latest publication I refer to *Mathematik am Ursprung*.<sup>21</sup> I cannot touch upon the details of these problems. A very searching investigation of the rôle of fictions in mathematics can be found in the above-mentioned book by Betsch. This writer comes to the conclusion that mathematics does not operate, as Vaihinger maintained, with fictions.

<sup>18</sup>Berlin, 1926.

<sup>19</sup>Berlin, 1927.

<sup>20</sup>Reprinted from Symposium, Berlin, 1927.

<sup>21</sup>Leipzig, 1927.

## III

We now turn to our second group of philosophical investigations, namely to those that relate to the foundations of physics, including physical geometry, and that are bound up more or less closely with the theory of relativity. It is particularly the following thinkers—some of them already mentioned in other connections—who have made contributions in this field: R. Carnap, M. Born, H. Dingler, A. Einstein, H. Reichenbach, M. Schlick, and H. Weyl.

Let us begin with the general epistemological problem of physics: What is the relation, in this field, of rational knowledge, experience, and deliberate postulation?

The older doctrine, in dependence chiefly upon Kant, maintained that empirical natural science has, as its basis, a "pure" science consisting of *a priori* truths. Only upon this basis, it was believed, could one, with the aid of experimentation and observation, erect a theoretical natural science. In opposition hereto there came, more especially from England (J. S. Mill), an extremely empirical view, which, however, was unable to maintain itself. Today there are essentially three competing doctrines: (1) the rationalistic, already mentioned; (2) the conventionalistic, which insists that all non-empirical elements of science are derived from convention—indeed in its most extreme form it even maintains that all universal assertions of science are postulations (Dingler); (3) the moderately empirical, to which we will need to give somewhat closer attention. Recent discussions of these questions for the most part take their departure from the theory of relativity. The following publications should here be mentioned: Representing the conventionalistic view, first of all the numerous works of Hugo Dingler.<sup>23</sup> A moderate conventionalism char-

<sup>23</sup>The most important of which are *Physik und Hypothese* (Leipzig, 1921), *Grundlagen der Physik* (2 Aufl., Berlin, 1923), *Relativitätstheorie und Ökonomieprinzip* (Leipzig, 1922), and *Der Zusammenbruch der Wissenschaft* (München, 1927).

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acterizes Carnap's essay, *Über die Aufgabe der Physik*.<sup>24</sup> Of the empirical group: Max Born, *Die Relativitätstheorie Einsteins*;<sup>25</sup> Einstein, *Geometrie und Erfahrung*;<sup>26</sup> Hans Reichenbach, *Relativitätstheorie und Erkenntnis a priori*;<sup>27</sup> *Der gegenwärtige Stand der Relativitätsdiskussion*,<sup>28</sup> *Axiomatik der relativistischen Raum-Zeitlehre*,<sup>29</sup> and *Philosophie der Raum-Zeitlehre* (soon to be published); Schlick, *Raum und Zeit in der gegenwärtigen Physik*,<sup>30</sup> *Allgemeine Erkenntnislehre*,<sup>31</sup> and *Kritische oder empiristische Deutung der neueren Physik*.<sup>32</sup> Here also belong, though to be sure with certain reservations, the writings of Hermann Weyl: in addition to his already mentioned contribution to the *Handbuch der Philosophie*, his *Raum, Zeit und Materie*.<sup>33</sup>

The train of thought of Dingler's conventionalism may be briefly summarized as follows: The results of observation and experimentation do not by themselves yield theories unambiguously. On the contrary, it is always possible, through the introduction of suitable auxiliary hypotheses, to bring any accepted theory into harmony with experience. To construct a theory of natural phenomena, therefore, one always requires a framework of principles which are not derived from experience. (Indeed, according to Dingler, universal assertions can never be derived from experience.) In so far Dingler's view is in entire harmony with that of Kant. But Dingler rejects the *a priorism* of the Kantians on the ground that the alleged self-evidence of the axioms is no criterion of their truth. He therefore regards axioms as postulates that depend upon the decision of the scientist.

<sup>24</sup>Kantstudien, Bd. 28, 1923.

<sup>25</sup>2. Aufl., Berlin, 1921.

<sup>26</sup>Berlin, 1921.

<sup>27</sup>Berlin, 1920.

<sup>28</sup>Logos, Bd. X, 1922.

<sup>29</sup>Braunschweig, 1924.

<sup>30</sup>4. Aufl., Berlin, 1922.

<sup>31</sup>2. Aufl., Berlin, 1925.

<sup>32</sup>Kantstudien, Bd. 26, 1921.

<sup>33</sup>5. Aufl., Berlin, 1923.

If, now, science is not to dissolve completely into chaos, the selection of postulates may not be left to the arbitrary choice of the individual investigator, but must be guided by a superior principle. The latter is the principle of economy—the principle that had previously been stressed by Ernst Mach. In this case it requires that, of all possible sets of axioms, the simplest be selected. For geometry, these are the axioms of Euclidean geometry; for mechanics, those of the Newtonian mechanics. The theory of relativity is rejected by Dingler because he believes that it violates the principle of economy. In his judgment, Einstein, in order to gain simplicity in a limited field, sacrifices the simplicity and therewith, above all else, the unambiguity of the entire structure of physics. If we were to reconstruct the entire system from the ground up whenever we were unable forthwith to include some new feature into the established system, we would witness what Dingler in his last great publication describes with moving words as the “collapse of science.”

In contrast herewith, critical empiricism, as we might designate the modern form of empiricism, in distinction, perhaps, from that of a J. S. Mill, holds to the following standpoint.<sup>34</sup> It concedes to a *priorism* and conventionalism that single physical laws cannot be derived solely from observations and experiments. Indeed one may not, either with certainty or probability, proceed by inference from one or several observations to other observations; consequently, also, one may not infer the existence of a law. For such a conclusion there is in every instance required a principle which Reichenbach calls the “principle of normal induction.” It states that for a given body of experiential data one always utilizes the most probable inter- and extra-

<sup>34</sup>In our account we shall follow essentially the line of thought pursued in Reichenbach's essay, *Relativitätstheorie und Erkenntnis a priori*. The other above-mentioned publications of the empirical tendency, however, in the by and large move in about the same channels.

polation. But in general this principle does not suffice. On the contrary, in the theoretical interpretation of any physical observations a large number of assumptions are generally made, and as a rule these assumptions may not be completely envisaged. Doubtless they include, more especially, geometrical axioms and the fundamental equations of mechanics. If these propositions are themselves in turn to be based on observations and experiments, we apparently have a logical circle. For this reason the rationalists as well as the conventionalists maintain that these propositions are known or established independently of all experience. Were this view valid, it would follow that the data of observation could be incorporated into every proposed system of principles, unless one assumed a pre-established harmony between the principles prescribed by reason, or by the principle of economy, on the one hand, and the facts of observation on the other. Now, the development of the theory of relativity has proved—and herein consists its epistemological importance—that there is a system of principles which is irreconcilable with the facts of observation. Furthermore, this system comprises precisely such principles as physicists and philosophers had hitherto recognized as valid and therefore made the basis of their inductions. This, however, proves that it is possible, on the basis of experience, to make a selection from among the various systems of principles. But we have still to face the above-mentioned objection of a logical circle. This objection may be removed as follows: If B follows from A, and non-A follows from A and B together, we may infer the falsity of A. Applied to our case this tells us that from a system of principles, A, there follows a certain interpretation of observed facts, B, which however, together with A, yields a law (non-A) that is in contradiction with A. From this it follows that the system A is false. It becomes clear, also, that, without becoming involved in a circle, it is possible



to reason from the interpretation of observations that result when certain principles are taken as foundational back to the *falsity* of these principles. The *validity* of these principles, of course, could not be inferred without circular reasoning. In all strictness such a conclusion is, in general, impossible. In other words, the validity of any system of principles may never be inferred with certainty from any mass of observations however large. From this, however, we may not conclude, as conventionalism does, that the principles are entirely independent of the facts; we may single out a certain system as the most probable, though always leaving open the possibility that new facts may expel it from this status.

The problem of space, or of geometry, has been studied with special thoroughness by the group of thinkers whom we are now considering. In addition to the above mentioned publications, we would refer especially to Carnap's *Der Raum*.<sup>35</sup> Carnap distinguishes three conceptions of space: "formal space," "intuitional space," and "physical space." Formal space is an abstract logical-mathematical structure. It is the proper object of pure geometry. Intuitional space is that in which we generally represent to ourselves geometric figures. Its relations and laws are known through *Wesensanschauung*, that is, through the intuition or immediate apprehension of essence. In opposition to Kant's doctrine Carnap holds that the intuition is that of only a limited spatial field. Assertions regarding space as a whole may not be derived from intuition; the latter, however, may be supplemented by freely selected postulates. Schlick, indeed, disputes the existence of such an intuition. He maintains that each of the senses has its own space, so that we have a visual space, a tactual space, et cetera. Carnap and Schlick are at one, however, in the view that the psychological facts of intuition tell us nothing

<sup>35</sup>Berlin, 1923.

ing of the structure of physical space. The most important part of Carnap's treatise is concerned with physical space. His exposition directly discusses the relation of geometry to experience and is perhaps the clearest and most exact account of this problem published in recent years.

If we designate as "the body of fact" all that may be derived directly from experience as regards the spatial relations of objects, then this body of fact must be differentiated from the interpretations of theoretical science. It is manifest that the body of fact can afford a characterization of only the topological features of physical space. All assertions on the other hand, as to whether lines are straight, surfaces plane and figures congruent depend upon postulates which are arbitrary in the sense that they are not univocally determined by the body of fact. If we select a specific mode of measurement, as, for example, the one customary in physics (according to which the two marks on the standard meter in Paris represent a distance equal to 100 cm. multiplied by a certain empirically determinable function of temperature, pressure, electrical charge, etc.) we derive a very specific metrical space whose structure, to be sure, still depends upon the degree of accuracy attainable at the time. Until 1919 the entire known body of physical facts, with the exception of the movements of the perihelion of Mercury, could without contradiction be put into terms of the Euclidean geometry. Even at that time an entirely different geometry might have been arrived at—for example, one in which the surface of the earth is a plane with a curvature everywhere positive and uniform. This, of course, would have demanded a different, and indeed a more complicated mode of measurement than the customary one. This same situation would make it possible, even today, after observations have confirmed the general theory of relativity, to preserve intact the strict validity of the Euclidean geometry, provided we assume that the length of a

rod depends not alone on temperature, pressure, etc., but also in a very determinate way upon its position in the gravitational field. If, on the other hand, we adhere to the mode of measurement hitherto customary, we find that space is no longer everywhere Euclidean but that it possesses a degree of curvature dependent upon the gravitational field.

Carnap comes to the following conclusion: The body of fact leaves us with a choice either between different modes of measurement or between different geometries. If we have come to a decision in one of these two regards, the outcome in the other follows of necessity. In the choice, the consideration of simplicity is authoritative. This, however, does not itself unambiguously determine the choice, for the principle of simplicity might be employed with respect to the mode of measurement as well as to the geometry, and it would lead to different results in the two cases. As a matter of fact, however, physics proceeds neither according to the one nor according to the other alternative, but it makes its choice in such a way that its development as a whole becomes the simplest possible. This, to be sure, carries with it the fact that neither the mode of measurement nor the type of geometry is completely determined at any stage.

Against this view an objection may be raised which we would here mention because it is of importance for the controversy between conventionalism and empiricism. Carnap always sets out, in his reflections, from a finished body of fact already lying at hand, and he investigates the possibility of expounding it theoretically. This, however, does not exhaust the task of theory. One of its most important functions—if not, indeed, its most important function—consists precisely in this, that it enables us to predict facts as yet unknown. But it is not at all certain that two theories which equally well present the known facts

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are of equal value also for the prediction of unknown facts.

Reichenbach has investigated this problem of Carnap's from a somewhat different point of view. He defines as rigid (*Starr*) a solid body which is isolated from all external forces. This is a physical definition of a rigid body which makes no reference to any system of measurement. It then is a fact of experience (of course only approximately verifiable) that two rigid rods which at any one time, when both are at rest, cover each other, will do so always and everywhere. To be sure, the concept of "isolation" involves a still further difficulty. It is obvious that this isolation may never be strictly realized. But even to achieve it approximately, one condition must be fulfilled. If there are "metrical forces," that is such forces as on the one hand operate uniformly on all substances, and on the other hand penetrate undiminished all isolating walls, obviously it would be impossible to construct an isolated system. To render the definition of a rigid body univocal and applicable one must therefore postulate that there are no "metrical forces." Such a postulate may be made without contradiction of experience, if one makes no assertions regarding the metrical structure of the world. The Newtonian physics proceeds conversely. It regards metrics as given *a priori* by the Euclidean geometry, and accordingly it is compelled to introduce a "metrical force," namely, gravitation.

The above-given definition of rigidity, together with the exclusion of "metrical forces," is an axiomatization of the traditional mode of measurement. Now it appears that at the present stage of knowledge the geometry which one thus obtains is in complete harmony with that which follows if light signals exclusively are utilized for purposes of measurement. This is one of the most important results of Reichenbach's axiomatics of the relativistic doctrine of

space-time. This axiomatics, into the details of which we cannot here enter, has the aim of differentiating the empirical from the conventional elements of the space-time doctrine. The axioms formulate the empirical facts (of course, after a generalization on the basis of the previously mentioned principle of normal induction) which are affirmed by the theory of relativity; the postulates, on the other hand, are laid down in definitions. This excursus into the theory of science is of great value in that it enables us for the first time to form a clear-cut and definite judgment as to the degree of justification with which the theory of relativity may appeal to physical experience. It appears here, as so often, that, the moment a controversial question is really formulated with strictness, it is fairly simple to settle the controversy in as much as each of the contenders is partly in the right and none of them entirely so. The theory of relativity rests to some extent upon empirical principles which are in part well confirmed and in part as yet unconfirmed but in principle verifiable; in some degree, however, it likewise depends upon certain postulates which are neither true nor false but may be evaluated only with respect to their suitability. In a new work, presently to be published, Reichenbach has laid broad, philosophical foundations for the entire doctrine of space-time.

Philosophical viewpoints similar to those of Carnap and Reichenbach, are maintained by Weyl in his works, *Raum, Zeit und Materie*, and *Mathematische Analyse des Raumproblems*.<sup>36</sup> But the main emphases of his investigations are purely mathematical, and we must therefore here pass them by.

A further problem closely bound up with the development of modern physics is that of causality, or rather that complex of issues which group themselves about this con-

<sup>36</sup>The latter was published in Berlin in 1925.

cept.<sup>37</sup> Physicists and mathematicians above all have succeeded in their attempts to reach an exact formulation of the causal law. Weyl has expressed it as follows: The temporal derivations of the quantitative aspects of conditions<sup>38</sup> in one part of the world are mathematical functions of the quantitative aspects of the conditions themselves and of their spatial derivatives at that position." In less mathematical, and therefore less exact language, this affirms that the temporal changes in the quantitative aspects of conditions (for example, the intensity of electrical and magnetic fields) at any specific time and place are completely determined by the values of these quantitative aspects of conditions at that particular time and place and in their immediate environment. If one compares this with Kant's formulation: "Every change in nature has a cause upon which it follows according to a law," one realizes at once the progress that has been made in the precision of the definition. But it is precisely this more exact formulation which discloses the "law" to be a completely meaningless triviality. In the spirit of the "classical" physics ("classical" in contrast with the "quantum" physics) the further demand might perhaps be made that the functions remain continuous. But even then one might say that the principle remains insignificant in that no observable facts can be conceived which would contradict it. The reason why the principle does not ordinarily strike us as thoroughly trivial is indicated by Weyl when he points out that the functions which control the course of the process are extraordinarily

<sup>37</sup>The following works should here be cited: Schlick, *Naturphilosophische Betrachtungen über das Kausalprinzip*, Die Naturwissenschaften, 1920, H. 20, and *Naturphilosophie in Die Philosophie in ihren Einzelgebieten*, edited by Max Dessoir, Berlin, 1926; Reichenbach, (in addition to the works already mentioned) *Kausalstruktur der Welt und der Unterschied von Vergangenheit und Zukunft*, Sitzungsberichte der bayerischen Akademie der Wissenschaften, Math. Naturw. Abt., 1925; Carnap, *Dreidimensionalität*, Annalen der Philosophie, Bd. 4, 1924; Weyl, *Philosophie der Mathematik und der Naturwissenschaft*.

<sup>38</sup>The term translated by this phrase is *Zustandsgrösse*; it might perhaps better be rendered "co-ordinates," except for the fact that to many this might tend to have an exclusively geometrical connotation. [Tr.]

simple; functions as simple as these we expect to find also in the future. But even with this modification nothing of importance can be inferred from the principle. Rather should we credit it with being a guiding maxim for investigation (and for everyday experience). As such, one would not be inclined to deny to it a certain *a priori*. But herein it would be very difficult to discover any *a priori knowledge*.

More important than this very insignificant principle is the order of events made possible by the causal relation. As is well known, the theory of relativity has disclosed the relativity of simultaneity. This, moreover, also brings a realization that the temporal succession of distant events is objectively indeterminate. Now, however, it has appeared that it is both possible and useful to define the temporal succession of distant events by reference to the causal relation. The causal relation reveals itself to be objectively knowable, independently of any system of reference. Thus it would be fitting to define simultaneity in such a way that in any system only such events could be called simultaneous between which no causal relation could exist. According to Kant, simultaneity is the schema of reciprocal activity, and temporal succession that of causality. The intuitive knowledge of the temporal order was thus supposed to furnish the criterion for the applicability of the categories. According to modern physics precisely the reverse obtains. The temporal order (of spatially distant events) is in itself arbitrary and is not determined by the data of observation. The causal connection of two events, on the other hand, can be known empirically, and this gives to the time order its arrangement.

The causal relation, furthermore, enables us also to determine the direction of the temporal sequence. For the cause-effect relation, as Reichenbach has shown, is not symmetrical. These investigations lead to a further interest-



ing problem, namely that of the difference between past and future and the definition of the "now." In his above mentioned treatise on the structure of causality, Reichenbach shows that if we accept the hypothesis of determination, past and future are not objectively distinguishable. The hypothesis of determination affirms that the quantitative aspect of conditions in any moment of time, together with their derivatives, determine the course of these magnitudes for all moments of time. It appears, however, that this hypothesis asserts more than may be justified through our experiences of the physical order. In its stead, one may make the assumption that the connection between the events is one of probability. If we adopt this supposition, which in any case is not in contradiction with any experiences derived from the physical order, we obtain a characteristic difference between past and future. Objectively, the former is determined, even though we know only a brief section of it; the future, on the other hand, is indeterminate, not only subjectively, because of our lack of knowledge, but also objectively, because it is determined by the present only with probability. The present is defined as the boundary between the determined and the indeterminate. But we must refrain from a further discussion of the interesting questions raised by these investigations.

Of the other problems in the philosophy of nature to which modern physics has given an entirely different form we would refer only to the problem of matter, or of substance. The literature relating to it is comprehensive. From it I single out only the following important items: Schlick's paper, already mentioned, on *Naturphilosophie*; Weyl's essay in the *Handbuch der Philosophie* to which we have also already referred, and his small but important book, *Was ist Materie*.<sup>30</sup> Even though the problem of matter is just at the present time in rapid flux and the most re-

<sup>30</sup>Berlin, 1924.

cent developments of "quantum mechanics" open up entirely new outlooks, one may nevertheless regard it as established that the old metaphysical concept of substance has no place in the natural science of today. The fact that we may trace the life history of the "things," including the living beings, of our environment and find it to be an approximately continuous course is indeed the reason why we conceive a "thing" as an essence persisting throughout a change of conditions. But when we descend into the world of atoms and electrons, this permanence and continuity reveal themselves as merely statistical. We indeed have an almost insuperable tendency to represent also the ultimate constituents of things as enduring, but in this physics in no wise justifies us. The wonderfully intuitable model of the atom constructed by Rutherford and Niels Bohr is today recognized as inadequate. In this model the electrons revolve, similarly to small planets, about the nucleus as the central sun, but this representation involves features to which nothing which we experience of the physical order corresponds. The individual electrons indeed have orbits with spatial and temporal features, physically real, but it appears impossible to ascribe to the individual electron a determinate place in its course at a determinate time. What is true of permanence is true also of the "space-filling" nature which earlier views ascribed to matter. Upon closer examination this also vanishes. Thus it seems necessary to abandon the "substance theory" of matter. Up to the present time, however, it has been impossible to develop without contradictions either of the two other views competing with it: the "dynamic" and the "field" theory. According to Weyl, a mediating doctrine is today the most probable, that is, the "agent" theory, according to which matter is an extensionless agency which arouses or stimulates the extended field. But this entire question, as al-

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ready stated, is as yet altogether too much in flux to permit of any final assertions.

There are quite a number of other important philosophical issues and researches which are more or less closely connected with the development of the exact sciences. I would call attention only to the problems connected with the concept of probability, and to those bearing on the delimitation of strictly valid laws of nature from merely statistical laws. Unfortunately I must renounce a discussion of these matters. It has been my purpose to characterize that recent philosophical work in Germany which developed in close relations with mathematics and physics. Completeness could not be achieved within the space limits at our disposal, but I trust that I have clearly indicated the characteristic traits of this work and have given my readers an idea of how fruitful the results of a close co-operation with the exact sciences may be to philosophy.

KURT GRELLING.

BERLIN, GERMANY.

## CONTEMPORARY GERMAN PSYCHOLOGY<sup>1</sup>

MORE than any other single science psychology may be described as the daughter of philosophy. In terms of the objective data studied, psychology is very closely allied with logic, epistemology, aesthetics and ethics; its crucial task, the question of the relation of mind and body, is at the same time the central problem of metaphysics. We can therefore understand why psychology has freed itself only lately from the mother discipline of philosophy. This close affiliation expresses itself today in the fact that as a rule both disciplines are still united in the personalities of their representatives. The tendency toward emancipation, on the other hand, is unmistakably strong. If possible psychology wishes to enjoy the same relationship to philosophy in which its older sister sciences stand. Then too its subject matter has for a long time accumulated to such an extent that it can rightly set forth its claim to be recognized as an independent science. The directions in which it has developed are indeed quite manifold. These directions, furthermore, could not be at all unitary, because diverse lines of inquiry have pursued different objectives.

A comprehensive exposition of "Contemporary Psychology" (*Psychologie der Gegenwart*) written in a vital and appealing style, even if it does not evaluate all branches of psychology with uniform justice, appeared in 1925 from the pen of H. Henning. But for the purposes of our report, its principle of classification is not serviceable. We prefer to make a survey of the main currents of modern

<sup>1</sup> Translated from the German by C. A. Ruckmick.

psychology in German-speaking regions by foregoing for the moment an attempt at systematic classification and adopting four divisions which permit of easy separation on the basis of their fundamental attitudes and their lines of activity: (1) experimental psychology and its applications, (2) so-called *Gestalt* psychology, (3) intuitive<sup>2</sup> psychology and the investigation of personality, (4) psychology of the unconscious, specific psychoanalysis and individual psychology. As an appendix short discussions will be devoted to comparative psychology and to the theoretical metaphysical psychology. In developing each division and its literature, the report must confine itself to sketching the thought processes of a few but, so far as possible, typical representatives in the separate spheres and directions of activity and to mentioning a number of characteristic publications.

### 1. *Experimental Psychology and its Application*

Particularly through its transition to experimentation, psychology seems to have justly achieved its freedom as an independent science. At the same time a characteristic of its progress is to be noted in the fact that G. Fechner, the founder of experimental psychology, set out in this direction from metaphysical lines of reasoning. The experimental procedure is closely allied to the analytical methods of the natural sciences. The elements of the mental life are sought for and investigated. This attitude and the experimental procedure itself were directed first of all to the investigation of sensory experiences, a phase of research that is still today in full swing. At the same time a certain characteristic turn has manifested itself in the development of

<sup>2</sup> Translator's note: A literal translation would require the active participial adjective, "understanding" (*verstehende*). But since this is ambiguous, I have preferred "intuitive" as the nearest approach, although this term is also equivocal. Further explication must be postponed until the matter is more fully discussed in a separate section. A. A. Roback (*The Psychology of Character*, 1927, pp. 331-337) uses "intuitive", "interpretative," and "understanding," quite interchangeably in referring to this school.

this direction of investigation. The older sensory psychology was more bent on the study of the conditions of stimulation and of the interdependence of stimulus, sense-organ, and sensation; in short, it moved in the direction of physiology. The law of specific sense-energies and the Weber-Fechner law were its points of crystallization. The more recent turn that the psychology of sensation has taken is more toward the purely psychological inquiry into the characteristics of sensation. But the field of activity first mentioned is by no means to be considered as relinquished.

On account of the limitations of space it does not seem feasible to give an abstract of the separate researches that have appeared in the psychology of sensation and perception. A survey will furnish at least an orientation in connection with a bifurcation that has already taken place in this field of activity.

Of the more physiologically biased type of investigation we will mention studies of the so-called lower senses, which in more recent times have attracted keen interest.

First of all we must consider the work of the M. von Frey school (Würzburg) on the kinaesthetic and cutaneous senses. The Weber-Fechner law was the point of departure of a series of studies by R. Paul (Munich) who drew up as a corollary of that law an analogous psychical regularity, a principle of relativity, in terms of which the subjective magnitude, the psychical activity, depends upon the objectively independent variables in such a way, that it increases at first rapidly, then ever more slowly, and finally approaches a liminal value. A long series of publications is devoted to a qualitative investigation of various sensory fields. A very recent volume (1926) of the *New Psychological Studies* published by F. Krueger and A. Kirschmann, psychologists at Leipzig, is concerned with the problem of "Light and Color." This comprehensive joint volume brings together studies on the threshold, on color-sensitiv-

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ity, on the construction of the color-pyramid, and on the so-called reversed spectrum (caused by a small opaque body which serves to replace the refraction that occurs in connection with a refracting prism, and by means of which the complementary colors appear instead of the colors of the usual spectrum). The volume clearly shows how much fundamental work is still to be done in the systematic organization of qualities and in the investigation of optical phenomena from the psychological standpoint. In the first part of the *Handbook of Psychology* (1922) K. Bühler treats the manner of appearance of the colors and submits his work as a project in the optics of painting. Under a similar title, *Concerning the Manner of Appearances of the Colors and their Modification through Individual Experience*, a work by D. Katz had already appeared in 1911 as Monog. Supp. No. 7 of the *Zeits. f. Psychol.* The same author had published as Monog. Supp. No. 11, of the same periodical (1925) a fundamental investigation called, *The Structure of the World of Touch*, which is methodologically related, in part, to the first mentioned study. Finally, further studies have come from this author in an attempt to prove, contrary to v. Frey, that the sense of vibration is an independent sense. C. Stumpf, who reported at the Sixth Congress of Experimental Psychology in 1914 on *Recent Investigations concerning Tonal Theory*, (a subject which has been developed almost to the point of an independent discipline) has continued his researches, since his investigations of the structure of vowels (1918) and the pitch of consonants (1921), and has just now published (1926) a comprehensive work entitled *Speech Sounds; Experimental-phonetic Investigations*. Stumpf's results support the Helmholtzian theory of vowels. Independently of Stumpf, this same problem has been investigated also in American laboratories where these results have for the most part been confirmed.

H. Henning has published a comprehensive book entitled



*Smell* (1924)<sup>3</sup> which serves as a "reference work in the field of psychology, physiology, zoology, botany, chemistry, physics, neurology, ethnology, philology, literature, aesthetics, and cultural history." Studies concerning the gustatory sense appeared from the same psychologist in 1921 and 1922.

Considerable attention has been directed to the "eidetic" phenomena which E. R. Jaensch (Marburg) and his followers have investigated in a pioneering way.<sup>4</sup> Eidetics are people whose ideas can be transposed into literally visual aspects, as Jaensch stated in his address before the Munich Psychological Congress in 1925. In a certain sense the "aspect-images" of eidetics stand midway between ideational images and (sensory) after-images. On account of their peculiar nature eidetics appear to be particularly suited for investigation of objective and pictorial thinking. Among adults eidetic phenomena appear more rarely and less distinctly, but even among the youthful, the frequency of their occurrence is apparently regional, varying with local conditions. According to the nature of the aspect-images, with respect to their modifiability or constancy, the eidetics fall into two groups, which are also distinguishable typically, on the basis of their constitution. According to the clinical picture of which they remind us, they have become designated as type B (basedovoid)<sup>5</sup> and type T (tetanoid). Type B is determined mostly through mental vivacity accompanied by shining eyes and lively complexion, whereas type T is more reserved, as indeed its outward manifestations would also indicate. The classification can be made also along other lines in accordance with the nature and content of the primary images which precede the eidetic aspect-images, for eidetics do not respond

<sup>3</sup> Translator's note: The first edition appeared in 1917.

<sup>4</sup> E. R. Jaensch, *Concerning the Development of the Perceptual World and Its Structure in the Years of Youth*, 1923; O. Kroh, *Concerning Subjective Aspect Images among the Youthful*, 1922.

<sup>5</sup> Translator's note: Cases of ophthalmic goitre are our nearest equivalents.

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in the same manner to all objects presented to them. Jaensch surmised that these phenomena involve older functional levels which are, nevertheless, still effective among average individuals. At one stage below this lies the pre-aspective layer, which can be observed in the so-called synaesthetic group. The synaesthetics, who are closely allied to the eidetics, but who can nevertheless be distinguished from them, experience colors more or less intensively with stimulation of tonal sensations (audition colorée). But a certain coördination of tones and colors appears also to be the rule among those who are not peculiarly characterized by synaesthesia. Eidetic phenomena would naturally be effective in explaining reports of religious hallucinations. Eidetic and synaesthetic phenomena, which are also found in other sense-departments, are of course not only psychologically interesting, but are to be studied also for their pedagogical importance. On experimental grounds, therefore, the possibility of a classification into types has emerged, a classification which could be combined with other attempts to distinguish types, about which we shall speak in detail later.

Interest has been manifested more and more strongly in the direction of the higher, so to say, the peculiarly psychical functions. Thus there has developed especially an experimental psychology of thought.<sup>a</sup>

The classical association psychology, whose outstanding contemporary representative is perhaps Th. Ziehen, had reduced thought activity, as well as all psychical processes, to associative reproduction. The memorial traces of simultaneous conscious processes are bound together and the reinstatement of one content revives those processes that are connected with it. Thus, finally, there emerge from each idea very many reproductive tendencies, and a system

<sup>a</sup> Foremost here are to be mentioned the extensive studies of Otto Selz, *Concerning the Laws of Consistent Thought Processes* (1913) and its comprehensive supplementary, *On the Psychology of Productive Thought and Error* (1922), of which Selz himself gives a short summary in *The Laws of Productive and Reproductive Mental Activity* (1924).

of diffuse reproduction, Selz says, develops in which the strongest reproductive tendency in any given case inhibits the others and thereby determines the flow of ideas. But correctness and strength in the association of an idea do not have anything to do with each other. It can therefore be assumed that the reproductive tendencies strengthen one another when they point in the same direction. This is the fundamental concept of the "constellation theory" of consistent thought processes as G. E. Müller interprets it. A thought-problem, for example, fashions a favorable constellation for its solution. It serves as a guide, since the nature of the task [*Aufgabe*] itself already arranges a series of memorial traces in increasing readiness, from which, through the peculiarity of the concrete content of the task, the corresponding contents are selected. But it can be shown that this hypothesis does not suffice to explain the actual procedure of thought. This procedure is conditioned by *determining tendencies*, as N. Ach has called them, which we can take to be primarily a collective term for all guiding factors. Along with this development, in which the associative explanation of the thought process tends to make the assumption of determining tendencies, goes side by side the development of the notion that thoughts are concerned with specific psychic contents which are not to be conceived as sums of ideas.

As a point of departure, O. Selz makes an hypothesis that is diametrically opposed to that of a system of diffuse reproductions among which a choice must be made. In place of such a system, he presents one of specific reactions in which a given single stimulus is constantly attached to a single reaction, like a reflex response to a stimulus, so that one can speak of a reflexoidal (reflex-like) arrangement. The proposed task corresponds to a stimulus, while the specific reaction which alone or together with others solves the task, is called the operation or method of solving. Every

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solution is accomplished through a chain of methods of solving. The method of solving may be intelligent or unintelligent, depending upon whether or not the thinking individual, in its application, realizes that the operation is a means to the solution. For example, we have the knowledge complex  $R_1 \cdot R_2$ , *i. e.*, two *related objects*<sup>7</sup>, *e. g.*, "hunting" and "fishing" stand in a relationship  $r$  (coordination). If I should search for a concept coördinate with "hunting," then the consciousness of the task is represented by the schema  $R_1 \cdot X$ , which Selz calls the anticipatory schema. The task is solved through the operation of complementing the complex, which results in this case reproductively. The experience of launching a consciously intended intellectual operation, according to Selz, is always a schematic anticipation of the goal, even in the case of other intellectual operations, such as abstraction and combination. Furthermore, through the realization of methods of solving, it should be possible to explain also those productive mental performances that are undoubtedly necessary to the establishment of scientific systems, to technical construction, and to artistic composition. Selz distinguishes the following principal instances which the reviewer wishes to illustrate by mathematical examples:<sup>8</sup> (1) Routine realizations, out of original elaborations arise methods of solution: a method of solving is reproduced and applied to new material. A student, for example, knows the method of solving quadratic equations and uses them in connection with a given case or applies them as a partial method, *e. g.*, for the solution also of the equations in the text of the next higher degree of difficulty. (2) Intermediate abstraction: a method of solving must first be discovered, it emerges from a total situation, is abstracted from it either (a) reproductively,—

<sup>7</sup> Translator's note: "object" in the sense of Meinong's *Gegenstandstheorie*.

<sup>8</sup> The *Os* in Selz's experiment received problems as, for example, to find the super—, sub—, or co-ordinate concept to a given one, the part for the whole, and the whole for the part.

a process suggests itself that offers a partial solution—in the case of the equation,  $5x^3 + 15x^2 + 15x = 1710$  we recall for example the method of completing the square by means of which a mixed quadratic equation becomes a pure quadratic equation; we proceed then as if it were a quadratic equation and obtain  $x^3 + 3x^2 + 3x + 1 = 342 + 1$ ,  $(x+1)^3$  or  $x=6$ ; (b) conditioned by chance,—Darwin found the struggle of mankind for existence described in Malthus; he abstracted the method for use in biology; or the student of mathematics learns incidentally that  $x^4 + x^2 = a$  may be solved by substituting  $y = x^2$ —he then can also solve  $\sin x + \sqrt{\sin x} = a$ ; (c) immediately,—the method of solving follows from the structure of the task itself, *e. g.*,  $\sqrt[4]{625} = \sqrt{\sqrt{625}}$ . (3) Voluntary or involuntary processes of abstraction initiated without the setting up of a goal are subsequently elaborated constructively, *e. g.*, a fortunate experience while writing poetry, or a chance observation in science.

Selz is led by his investigation to a position opposed to that of Bergson, for whom interminably new phenomena arise in a manner inexplicable by scientific law. Selz's work shows how precisely these constant, uniform coordinations of mental operations and the recurrence of the factors of solving form the prerequisites for the arousal of new operations and productions. In these terms an outlook is afforded toward a "biology from within," by means of which the development of new types of reaction is explained in terms of old ones.

In the field of the psychology of thought other studies may be mentioned, though limited space forbids more detailed accounts: the quite comprehensive investigations of the school of N. Ach concerning naming, abstraction, and the building of concepts; the investigation of Willwoll, in which the observer was given two concepts and was asked to form one that is superordinate to them, a concept that

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could not be easily reproduced, *e. g.*, the concept superordinate to "steps" and "ladder"; finally the researches of Lindworsky and Störring on the forming of conclusions in thinking.

In the field of the psychology of feeling are to be mentioned G. Störring's *Psychology of the Human Affective Life* (1916); in the field of the psychology of volition, J. Lindworsky's *The Will, Its Appearance and Control in Accordance with the Results of Experimental Psychology* (1919).

Naturally psychology has not confined itself even in Germany to the establishment of general uniform principles, but it has also concerned itself with the discernment of characteristic individual differences. As in the fields of sensation and perception, there appear specific differences also in the spheres of memory, ideas, attention, reaction, and the thought processes, and all these individual peculiarities are adapted to serve as foundation-stones for a differential psychology (W. Stern, *Differential Psychology*, 1921)<sup>9</sup> and as an application in time to psychotechnics.

Pedagogy, medicine, the science of law, and industrial science represent enlarged fields of application of psychology, especially of experimental psychology. Since 1914 applied psychology has been very energetically developed in Germany. In industrial psychology there press forward the complex questions concerning the rationalization of the work-process, the testing of special ability, and vocational guidance, all of which involve a long series of investigations. The problem of rationalizing salesmanship, the "psychotechnics of advertising," has likewise been brought

<sup>9</sup> Translator's note: The first edition of this work appeared in 1900 under the title *Concerning the Psychology of Individual Differences*. In place of a second edition, a totally rewritten and much larger work was published in 1911 under the present title.

within the scope of research.<sup>10</sup> Even if the rather too great hopes which were directed toward psychotechnics have not all been fulfilled and a certain rebound of disillusionment must be faced, nevertheless psychotechnics has already proved its justification within natural limits and has been assured the recognition of industry.

We close this review of experimental psychology and its application with the citation of several general text-books and collective works: Abderhalden's, *Manual of Biological Methods of Research*; J. Fröbes's two-volume *Text-book of Experimental Psychology* (1920 and 1923)<sup>11</sup> and R. Pauli, *Psychological Manual* (1923).

## 2. Gestalt Psychology

In the organic development of experimental psychology the tendency had already emerged to abandon the closed systems which the association psychology portrayed, and to comprehend the mental structures in their specific peculiarity and totality rather than to destroy them through an extensive ramification. And yet this development did not satisfy many psychologists. With the revolutionary claim to the production of a "new" psychology, the so-called *Gestaltpsychologie* appeared on the stage. As its chief representatives may be named W. Köhler, M. Wertheimer, and K. Koffka<sup>12</sup>. The psychology of *Gestalt*, influenced as it was from the direction of behaviorism and the psychology of intuition, raised against conventional psychology the charge

<sup>10</sup> Among the works in the field of applied psychology are to be cited, H. Münsterberg, *Fundamentals of Psychotechnic*, edited by H. Henning (1920); F. Giese, *Psychotechnic Manual* (1923), and *Manual of Psychotechnic Aptitude Tests* (1925); W. Moede, *Experimental Psychology in the Service of Industrial Life* (1923).

<sup>11</sup> Translator's note: The third edition appeared in 1926.

<sup>12</sup> Köhler, *The Physical Forms at Rest and in a Stationary Condition* (1920); Wertheimer, *Three Essays concerning the Psychology of Gestalt* (1925); Koffka, *Psychology* in M. Dessoir's collective work, *Philosophy in its Separate Fields* (1925).



that analysis into elements is an unsuitable method of research for psychology. Its accusations were primarily pointed, it is true, toward association psychology, which might anyway be considered as exploded, but they also affect every type of psychology which does not fundamentally break relations with the principle of dissection. The actual mental structures are entities, they are "forms." Even in perception more is given us than a sum of sensations. The perceptual experiences, moreover, are mental entities. Geometric figures, geometric-optical illusions, and melodies are especially characteristic examples of perceptual *Gestalten* [or "forms"].<sup>13</sup> Their characteristics are not only the narrower interrelationship of their parts as over against the environment, but they are altogether more than the sum of their parts and are not to be built up out of single elements. They show their character as entities also through the possibility of their transposition: the single tones of a melody may be replaced in part with suitable other notes or an entirely new set may be introduced, without disturbing the melody. So objects may depict themselves on our retina in the most varied perspective positions without losing their unitary character. Experiments with animals have shown that for these animals also it matters not what the absolute colors are, but what the "color-formation" is. When chickens, for example, had been trained to look for their food on the darker of two surfaces, when the darker surface was retained, but the lighter one was replaced by one that was still darker, somewhat in the direction of black, they went not in the direction of the one which remained absolutely the same, but in the direction of the relatively darker, that is the black. Similar observations could also be made with children. In short, our entire world

<sup>13</sup> Translator's note: *Gestalt* has been variously translated, more frequently as "form," less frequently as "shape," "figure," "configuration." Köhler himself prefers "form." The terms "*Gestalt*" and "form," will therefore be used interchangeably in what follows.

of perception is normally built upon *Gestalten*, not on "and-combinations." Such "and-combinations," mere sums (*e. g.*, the perception of a pair of lines as two separated lines) are products of abstraction. The sensations themselves, which experimental psychology regards as elements, are artificial abstractions. The fundamental thing is the perception, which is concerned with "forms." Where no "form" can develop itself, there arises the impression of a chaos.

All of these emphatically intoned thoughts are certainly very worthy of consideration. They are at any rate not entirely new; furthermore, the building of "forms" naturally has long been an object of attention among psychologists. In his *Introduction to Psychology* Wundt had already advanced as the first psychological law, "the creative resultant," according to which it is the inherent nature of the combined contents of consciousness that their peculiarity is not created from a sum of the parts out of which they combine themselves. In 1890 C. von Ehrenfels had already coined the name, "form-qualities" (*Gestaltqualitäten*). The Austrian school (Meinong, Witasek, Benussi, etc.) had spoken of "funded contents" which arise through a mental construction of elements. In 1913, in his book, *The Perceptions of Form*, Bühler had discussed the question of the development of "form." G. E. Müller has recently investigated the conditions for the formation of complexes<sup>14</sup> and has directed a thorough-going critique against the Köhler - Wertheimer - Koffka theory of *Gestalt*. The difference between the more recent and the earlier views of mental formations lies in the fact that, according to the more recent interpretation, the primary concern is not the elements, from which, through a creative act of the mind, the *Gestalt*, which is more than a sum, is thought to arise; the *Gestalt* rather is the primary unit, while its parts

<sup>14</sup> *The Theory of Complexes and the Theory of Gestalt*, 1923.

are products of abstraction. The envisagement is therefore not from below upward, but from above downward.

Just as the association psychology sought to produce a physiological hypothesis, in which the associations were traced back to circuits in the central nervous system which had formed themselves between simultaneously arising elementary impressions, so the psychology of *Gestalt* looked for a physiological hypothesis corresponding to its demand. The mental forms must correlate with physical forms of the nervous system. W. Köhler called attention to the fact that inorganic nature likewise exhibits phenomena which could be called "forms." Thus, for example, the distribution of electricity in a conductor fulfills the requirements of *Gestalt*. It is not to be understood as a sum of single charges, but the distribution of charges is dependent upon the total surface of the conductor. Subtraction or addition of charges does not alter any part of the distribution. *Gestalt* is therefore capable of transposition. Physico-chemical "forms" of such a nature as run their course in the nervous system, among which each partial process is conditioned by the whole, are thought to represent the physical correlate to the mental *Gestalt*. Wertheimer has furnished us with an especially concrete expression of this idea through his introduction of so-called cross-functions. A specific unit results from the stimulation of individual cells and the cross-processes that run their course between the excited areas of the brain.

*Gestalt* psychology finally encompasses as "forms" all psychic processes. Especially, for example, are the reflexes and instincts "forms" which are to be traced back to the physical "forms" of the nervous system. In the visual sense modality, the sensorium and the motorium would build a unity that would initiate itself on the basis of the simplest conditions. Thus are explained the reflex eye-movements which are observed so early in

life. Instincts are not regarded as chain-reflexes, but contrariwise reflexes are "frozen" instincts. The situation, in which an instinct is operative, is designated as an open *Gestalt*,—the instinct concerns itself with the task of closing this *Gestalt*. In principle the concept of *Gestalt* and the explanation of instincts built up around it are expanded also to include thinking. A problem presents an open *Gestalt* of thought, which yearns for solution (closure). The thought process does not come to rest until the situation is transformed into a closed *Gestalt*. This transforming or translation of thinking, which as a matter of fact is very important, and which Wertheimer has illustrated with interesting examples, recalls the creation of an anticipatory subject in the theory advanced by Selz. The solving follows often when an object, which before this played its own rôle, changes its significance in such a manner that it becomes adapted to close the open *Gestalt* which the situation presents. Productive thinking is in this manner exactly suited to the task, in that the situation must first be transformed into an open *Gestalt*, that such a "form" must first be found.

A number of criticisms have rightly been raised against the psychology of *Gestalt*. The most effective are perhaps the following. The physiological hypothesis is a variety of materialism. It is as little in a position to explain the sensory mental process as the outlawed atomistic physiological hypothesis. What Köhler calls *Gestalten* are fundamentally only conditions that are equalized in effect. These conditions are not more reasonable than were the elementary processes. They also are really not more than their sum, at least if one uses the term "sum" not only in the spatial, but also in the dynamic sense. It may well be that such equivalent conditions play a large part in neural reactions; perhaps, also, they are at the foundation of the perceptual "forms." These separate points are still to be

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proved. Undoubtedly the grave difficulties which the theory faces, and which especially E. Becher has revealed, must not be misinterpreted. An explanation of those psychical processes, however, which we designate as meaningful, especially thinking, is not afforded by means of this hypothesis.

A second criticism is that the concept of *Gestalt* becomes much too broad, so that it grows vague and confused. Every psychic process is called a *Gestalt*. But what Koffka calls "thought-forms" is surely something essentially and altogether different from the perceptual "forms." It is certainly very useful to regard the thought processes as wholes, but on closer acquaintance nothing emerges that is of more fundamental importance than what the traditional, in particular the thought psychology—as for example the writings of Selz and Bühler—has brought to light. Everything only appears in a new dress.

Basically the entire personality may be called a *Gestalt*, an entity, but when we undertake an investigation of mental contents and processes, we must certainly ever again (somehow) select entities, and where the cross section shall be made depends essentially upon where the psychologist wishes to cut. The psychology of *Gestalt* desires also to become affiliated with behaviorism and with the doctrine of emotion advanced by McDougall. The behaviorism in the doctrine of Thorndike and McDougall's theory of instincts have of course not been neglected in German psychology. Thus, in the Psychological Congress at Munich in 1925, these tendencies in American psychology were introduced through a summary read by Karl Bühler. But then these theories have merely been followed with interest rather than having become absorbed. The psychology of *Gestalt* is in that respect an exception to this situation, inasmuch as it tries to embody particularly the doctrine of instincts and emotions in its system. The situation which makes instincts

operative Koffka calls an open *Gestalt*. The closure entails the formation of a physical *Gestalt* in the central nervous system. The *Aufgabe* is the detection of essential and fundamental instinctive "forms." The relation between the psychology of *Gestalt* and behaviorism appears to the reviewer to a certain extent to be artificially drawn, but the tendency to get close to everyday life and to observe organisms as wholes is in either case common to both points of view.

### 3. *Intuitive Psychology and Investigation of Personality*

The requirements of everyday life, which are effective everywhere in modern psychology, are not satisfied, to be sure, with the psychology of *Gestalt*. So-called *intuitive psychology* places itself in a still more fundamental contrast to traditional psychology than did the psychology of *Gestalt*. The charge that it brings is two-fold. (1) The traditional experimental psychology is a psychology of elements, instead of an envisagement of its objectivity in a developing and perfect mental life. (2) It would explain mental events in a causal connection after the manner of the natural sciences instead of permitting them to be understood. The intuitive psychology therefore has in common with the psychology of *Gestalt* the aversion for the mechanical and atomizing point of view which traditional psychology presents. But it is not true, as Koffka thinks, that the psychology of "form" in a certain measure builds a bridge between "explanatory" psychology which is directed toward the natural sciences and "intuitive" psychology which is orientated toward the humanistic sciences. From the standpoint of intuitive psychology, undoubtedly traditional experimental psychology and the psychology of *Gestalt* rather belong together. What intuitive psychology offers is another type of comprehension. W. Dilthey, to whom intuitive psychology traces its origin, has formulated the

contrast as follows: "We explain [the life of] nature, we understand the life of mind." Since then the representatives of intuitive psychology have not become weary of discussing this contrast. Thus H. Erismann has designated as unintelligible all knowledge in general that has been inductively obtained, in terms of the uniform operation of causal laws. Explanation in the natural sciences, according to him, consists in organizing an inductively obtained event which proceeds unintelligibly according to law. Every research involving a further analysis points only to other not less unintelligible laws. The situation is different in the mental realm where the relations are intelligible from within outward (*The Peculiarity of the Mental*, 1924). But the concept of "intuition" is manifold in meaning. A very thoughtful explanation has been achieved in a book, *The Problem of Psychological Understanding*, by G. Roffenstein (Vienna, 1926).

K. Jaspers distinguishes static and genetic intuition. The first is a self-realized mental state; genetic intuition inquires how mental processes develop out of mental processes. The demand for a static understanding faces that point of view which one tries to designate as the phenomenological method. Phenomenology demands of every conceptual elaboration of phenomena that it should envisage itself, that it should possess itself of the quality of experience, that it should set itself into the circumstances of the observation, and that it should comprehend its essence in terms of natural appearances. If this point of view is applied to mental contents, then the conditions for a psychologically static understanding are established. Detailed presentations, as that given for example by M. Scheler of the feeling of sympathy, owe their existence to such an attitude. Love in its manifold forms and meanings, sympathy together with joy and sorrow, are subclassified in accordance with their intrinsic nature. In the class of phenomenological interpre-



tations belong, in addition to the works of Scheler, those of A. Pfänder, P. Haeberlin, and others. We can not here discuss in detail the differences in the points of view nor their justification ([in terms of] empathy, re-living, intuition).

To understand the mental life genetically does not imply an understanding of the underlying organic motivation. If intuitive psychology has a fundamental category it is that of purpose. (Anna Tumarkin, *Prolegomena to a Scientific Psychology*, Berne, 1923).

An especially important task in the realm of intuitive psychology is naturally that of comprehending and describing the peculiar nature of personality as a unit. Even W. Stern, who does not really belong to the movement known as intuitive psychology, writes in his *Differential Psychology*: "Personalities, in so far as they are entities and also present mental wholes, can be understood only through re-living them." Differential psychology can only deliver building-stones.

The representatives of that type of psychology which is directed toward an understanding of personality labor, to be sure, above all with the not-univocal term, "concept of structure." All mental impulses and strivings together build a framework, in which one factor depends upon another, and these essentially uniform, ever-changing, dependent relations make up the structure of personality. Therefore only through re-living, empathy, and intuition is it possible to understand this framework in terms of its nature and meaning, to indicate its interdependence, and to follow the coöperation of characteristically individual experiences and performances of personality. It serves to show how the mental life of a personality and its expressions can be understood from the point of view of structure. The inquiry concerns the lawful uniformity of the structure, not the single causal laws. Several factors must

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be analyzed out as being influential regarding structure, with the result that personalities will be classified into types in accordance with the similarities in the factors governing the structure. Thus intuitive psychology becomes the psychology of types. The representatives of intuitive psychology as a rule come from the humanistic scientific disciplines; they are orientated toward inquiries into the philosophy of culture and of values. The points of view regarding the formation of types are manifold. The foremost follows the division of personalities according to the attitude assumed in their views of life and according to their systems of values.

E. Spranger of Berlin is the most famous representative of intuitive psychology today. In his *The Forms of Life* he proceeds from his basic premise that the structure of a personality is given in terms of the predominating evaluative tendencies. He finds the main evaluative tendencies objectively operative in the six great spheres of culture: in science, art, religion, industry, the state, and society. To these six spheres of culture, corresponding to the systems of value which are respectively grounded in them, he allies six types of personality that are governed through interest in these spheres: science, theoretical persons; art, aesthetic persons; religion, religious persons; industry, economic persons; society, social persons; and the state, political men or rulers. From the preponderance of one evaluative tendency results a characteristic dependence of the others. A pure politician, for example, has no longer any peculiar mechanism for the objectivity which science demands. His theoretical training is therefore that of the rhetorician who wishes to convince through speech. In the artistic sphere he will lean toward an art that has power to impress you. The possession of this ability is for him material for might. God for him is a ruler. In so far as social acts in social relationships tend toward super- or

sub-ordination, he leans toward a patriarchal conception. Naturally not all men can be classified under one of the six rubrics. There are mixed types, to which Spranger assigns the modern technical individual in whom the theoretical and economic evaluative tendencies fuse. But there are also duplex forms in which several structures are wrestling for leadership, often at the expense of the harmony of the personality and its performance, often with the unavoidable result of a dangerous conflict.

Spranger's book, *The Psychology of Youth*, has made a strong impression, especially in pedagogical circles. Spranger here describes in a series of essays the method of classifying juveniles in terms of the problems which particularly concern them (politics, social intercourse, love, sexuality, —among youthful persons love and sexuality are not yet fused, but are separate spheres of experience in their consciousness) and presents the characteristic features of a number of juvenile types.

From a point of view different from that of Spranger, Jaspers develops a classification of types (*The Psychology of Philosophies*, 1925). As Dilthey had made the philosophical attitude (naturalistic, idealistic, contemplative interpretations of the world and of life) a basis for the characterization of personality; as Spranger, the system of values, so in the case of Jaspers the points of view of philosophizing and of evaluating become fused by means of the strong influence of historical necessity. In his survey, *On the Personality-types and the Method of their Determination* (1924), O. Felz designates as the most important principle of demarcation underlying the psychology of Jaspers, the constancy or instability of those evaluating tendencies which afford the conduct of life a firm guide. If the fundamentals of traditionally bound men are shattered through reflection and scepticism, there results the type of unprincipled, nihilistic, chaotic person. But life demands new bond-

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age. The "demoniacal"<sup>15</sup> person who can keep in touch with the tendencies toward historical development but at the same time has discovered new evaluations and is inspired by them, secures for himself and for others a new fulcrum. He makes the transition to new crystallizations in conventional forms. The consistent rigorist who is grounded in firmly established principles follows him. Thus there is developed a tripartite division: consistent, chaotic, and demoniacal persons. As in the case of Spranger, the division into types by Jasper bears also the character of metaphysics and the philosophy of culture. While Spranger's classification is obtained in a measure by means of a cross section through the principal spheres of culture, the Jasper division suggests a longitudinal section. Today our youths stand in the magnetic field of attraction of both poles: the longing for traditional bondage, on the one hand, and for newer evaluations, on the other. K. Jaspers has also published a work, *General Psychopathology* (1923). Finally, the point of view of intuitive psychology has also been brought to bear on the fields of historical science and of sociology.<sup>16</sup>

Against intuitive psychology the charge is immediately brought that it delivers us no really teachable system. It is more an art than a science. Two further suggestions are added: (a) The meshes of the typification are altogether too large. If we look out upon the world, we are relatively seldom in a position, except in the case of striking personalities, to designate with any certainty the conformity of an individual to a given type. The majority does not lend itself without constraint to the classification. (b) To this charge must be added that the point of view of classifying

<sup>15</sup> *Translator's note*: This term in our language usually signifies a "demon" in a malicious sense. Originally, of course, as in the use of "daimōn" by Socrates it denoted divine inspiration. In the German, the meaning is allied to this and means "endowed with genius."

<sup>16</sup> G. Simmel, *Concerning the Nature of Historical Interpretation* (1918) and *Problems of the Philosophy of History* (1923); M. Weber, *Concerning Several Categories of Intuitive Sociology*, Book IV.

into types does not belong in the first instance to psychology, but to the sphere of the philosophy of culture and of metaphysics. These ideas are justified in the humanistic science of characterology, into which the psychology of types finally emerges through greater ramification of the guiding lines which envelop the structure of a personality. Very valuable in this direction is certainly the *Characterology* (1925) by Utitz, in which a great array of characterological guiding lines are set up, of which the scarcity of space does not permit reproduction here. Utitz also publishes a characterological year-book in which the various characterological currents are expounded.

Jaspers' psychology, as well as that of Spranger, established ideal types derived from the humanistic sciences. Side by side with these there has matured another investigation of personality which aims to characterize the expressional forms in which the character of the personality manifests itself: body-development (Kretschmer); body-posture, head and facial development, and handwriting (Klages). Here we are again very much concerned with the structural uniformities which apply to the personality as a whole, but in this psychology of expression the characterization rests not, at any rate not only, on the point of view of psychological intuition, but in part also on a procedure in accordance with empirically inductive methods which can not make claims to a complete intuitiveness.

Entirely from the point of view of psychopathology E. Kretschmer tries to solve the problem of typification. His book, *Bodily Structure and Character* (1926), which has become well known especially among physicians, proceeds from the basic supposition that the peculiarity of the relationship between corporeal and mental habits is more easily and more sharply comprehended in pathological than in normal cases. He carries over, then, to normal persons the relationship of characteristic mental and constitutional

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symptoms which were observed in both great endogenous psychoses, schizophrenia and circular insanity, since he interprets disease as a distortion and an unhealthy exaggeration of normal dispositions. The constitutional forms are classified into three great groups: athletic, aesthenic, and pyknotic (compact) bodily build. The last is found especially among those of circular pathology; the first two forms, among the schizophrenic. Thus Kretschmer obtains a principle of classification for normal persons also, in that he divides them according to their constitutional form into cyclothymics (with pyknotic bodily build) and schizothymics (with aesthenic or athletic bodily build). The type of experience of the first recalls the pathological picture of the circular type when one thinks of it as exaggerated by disease; that of the schizothymic approaches the schizophrenic type. Accordingly it is characteristic of the schizothymic that they are oversensitive or without sensitivity, of the cyclothymics that they are hypomanic or depressive. Indeed the schizothymics fluctuate between extremes. They are problematic natures whose inner being in many ways does not correspond with their outward behavior. The cyclothymics are simple, steady folk. According to the temperament of the cyclothymic individual, he is weary or versatile, conservative or extravagant; thus the schizothymic also is stiff or hasty, apathetic or exuberant. There are a series of subclasses: for the schizothymic—the cool, aristocratic dispositions, the cold egoists, the sensitive aesthetes, the irascible and the fanatic; for the cyclothymic—the gay hypomanics who are always stimulated, the quietly contented or those of thick blood. The cyclothymics tend to be realists when they are poets, objectively descriptive empiricists when they are investigators, stolid progressives when they are political leaders, happy-go-lucky organizers or sensible middlemen. The schizothymic as a poet is pathetic, romantic, or aesthetic; as a scientist, precisely log-

ical or metaphysically speculative; as a politician, idealistic and fanatic or despotic and coldly calculating. The typification of Kretschmer can be made serviceable for investigations of heredity and contrariwise it can attempt to substantiate the relation between the symptoms of both types through the investigations of families.<sup>17</sup>

#### 4. *The Psychology of the Unconscious, Especially Psychoanalysis and Individual Psychology*

Neither experimental differential psychology, nor structure<sup>18</sup> psychology, nor expressive psychology regards the mental life of a single individual. For all of them the general organization is of primary importance, whether it be causal or typical in nature. To have moved the mental life of the single individual, on the basis of his individual experiences, into the focus of attention is by all accounts one of the contributions of psychoanalysis, a fact which even so incisive a critic as H. Henning recognizes. The position of psychoanalysis we can further designate in that, in addition to the realm of its own peculiar school, it has won a wider circle of modified adherents. These agree with its basic concepts, when we understand it to refer to the doctrine founded upon experience, that the wish and fear complexes which we do not consciously trust ourselves to separate and which we have suppressed into the unconscious, can manifest themselves in misdeeds (in mis-speaking oneself, in errors in writing) but above all in dreams, by means of which the basic ideas that appear in the dream seem to be masked through translation into symbolic pictures, often to the point of unrecognizability because in their original forms they can not pass the "dream censor." In neurotic

<sup>17</sup> In this direction we ought to mention especially the work of H. Hoffmann, *Inheritance in the Mental Life*, 1922. As related to the problem of inheritance we must here indicate also W. Peters' book, *The Inheritance of Mental Peculiarities and the Psychological Constitution*, 1925.

<sup>18</sup> *Translator's note:* Not to be confused with "structural" psychology in America. As explained in the text above, the term refers rather to the "structure" of the personality.

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personalities particularly, these may lead to pathological disturbances, even to organic diseases, which can be relieved through the solution of the suppressed complex by making the unconsciously operating cause conscious. On the other hand, the more moderate adherents tend to deviate from every overdrawn and dogmatic theory. They deviate particularly from the notion that the dream is exclusively derived from suppressed dream-ideas, from the inclination to generalize from pathological to normal cases, and from the commanding position which is assumed in the Freudian system by the *libido*, or the pleasure principle. Indeed Freud himself repeatedly states, even in his newer publications, *e. g.*, in the work, *The I and the It* (1923), that the charge is unjustified, that psychoanalysis does not concern itself with the higher moral values in human beings. To the moral and aesthetic tendencies are directly assigned the rôle of initiating the suppression. But the position of the sexual impulse, the pleasure principle, love in the widest sense, still remains an overpowering one. The egoistic impulse is secondary; even the impulse toward self-preservation is finally subordinate to love. The sublimated, higher impulsive forces are developed out of it; the "ego-ideal" or the "super-ego," as Freud calls it, which rules over the ego as conscience, is comprehended as the "inheritance of the Oedipus-complex" and is led back to its relationship to the father. Briefly, the peculiar life-giving principle is the erotic impulse. Side by side with it Freud more recently puts a second principle, the death impulse, "to which is given the task to lead organic life back into its lifeless condition." But it has been well said that he regards sadism as the representative of this impulse. In contrasting the two classes of impulses, the polarity of love and hate could be introduced, love and the death impulse struggling in the "It" to which, as a part of the suppressed mental content, the dynamic unconscious also belongs. Out of the "It" the con-

scious ego raises itself and the merely latent, merely descriptive unconscious, the "pre-conscious" which on the basis of remnants of recall can become conscious at any time. In spite of all the one-sidedness and boldness of the symbolism and the creation of hypotheses, the conviction always arises that here we are concerned with a deep-seated organization which only slowly reveals itself.

Psychoanalysis has produced an enormous literature, most of it from the international psychoanalytic publishing house at Leipzig, Vienna, and Zürich, and in the international periodical *Imago*. Among the works on medical psychology the *Medical Psychology* of P. Schilder, published in 1924, stands entirely on a psychoanalytical basis. In one of his earliest publications Freud himself has defended analysis by the laity. Neither study nor predisposition can make every physician a talented analyst. Contrariwise medical studies are not necessary requirements for the application of the analytical method.

This very over-emphasis of the erotic through psychoanalysis has led many erstwhile Freudians to go over today to "individual psychology."<sup>19</sup> As the leader among these must be mentioned the Viennese physician A. Adler (*Practice and Theory of Individual Psychology*, 1923). The conduct of a personality is to be understood on the basis of the "guiding lines" of its life which it has for the most part unconsciously given itself in earlier youth and by which it allows itself to be led in order to separate itself from its surroundings and to bring itself to fruition on the basis of the life-plan and the style of living that in the first years of childhood it had already almost unalterably built up. Here the "impulse to make good" stands at the focus, not the erotic impulse. More than that, every personality has that erotic impulse which best suits its total individuality. The

<sup>19</sup> *Translator's note:* This must not be confused with the psychology of individual differences. It concerns rather the mental life of the individual personality.

"feelings of being of little account" are the ones that are here suppressed. The girl who feels herself slighted by the boy staves off the "feeling of being of little account" in a "protest against men;" and so every one defends himself who has been handled in a stepmotherly fashion by nature or by his contemporaries, every mutilated, stunted, inwardly injured, neglected, intimidated person whose communal spirit has been disturbed. He establishes himself in many ways, he compensates for the actual or the assumed want, overcompensates for them very often, so that he surpasses those that are normally endowed and developed; or else he tries to make himself count in an anomalous or unsocial way in order that he may win recognition and love, which he demands, in order that he may divert attention to himself, or in order to maintain himself; or, finally, he takes flight in an imaginative life, revels in great plans whose consummation he can and must not attain in order not to disturb the aura which he casts about himself. The suppressed complexes of being of little value are not conscious to the personality; but they motivate its conduct on its own behalf, and for other individuals their behavior is correspondingly modified. In the dream, in erroneous responses, in neurotic diseases they come to the surface. The *milieu* is a deciding factor for individual psychology, the experiences of childhood determine the guiding-lines; the significance of hereditary tendencies and endowments are indeed not denied, but they play a minor rôle as contrasted with the influences of the *milieu* and with the directional power of past experiences. The task of the educator is to develop the endowment of the child, of every child, at the same time trying to understand the child on the basis of its guiding-lines. Noncompulsion in training and training with independence as the goal become, therefore, the cardinal demands of individual psychology. The child with organic deficiencies, the child that is hard to train, the only child, the first born,

the neglected, the supersensitive child are special problems in that field. It is clear that this doctrine makes its appeal to the physician, to the educator and to the criminalist just as it does to the psychologist. Like psychoanalysis the individual psychology of A. Adler has established a school. It has control over organizations which make theoretical and practical contributions to it (in child welfare stations and in consultation hours for parents) and over an extensive literature. The newly published comprehensive symposium, *Handbook of Individual Psychology* (1926) organizes the ideas of the movement in the various fields over which it has extended itself. By way of criticism it must be said primarily that the individual psychology of Adler, no more than the Freudian psychoanalytic psychology, should presume to make the attempt to establish an exhaustive psychology of the mental life; it is much rather—especially in borderline cases—a serviceable but always a one-sided point of view.

By means of an interesting plan for the classification of types, C. G. Jung, who like Freud and Adler started with the experience of a specialist in nervous diseases, has sought to reconstruct psychoanalysis and individual psychology (*The Psychology of the Unconscious Processes*, Zürich, 1917). He distinguishes an extravertive and an introvertive type. The former affectively yields to the object in his environment and suits himself to it; the latter avoids it, withdraws himself from it, and reflects upon it afterwards. The sexual theory of Freud, the psychoanalytic procedure, is a therapeutic method whose application corresponds to the extravertive type; individual psychology is more suited to the introvertive type. C. G. Jung, who introduced also the associative experiment, does not shut his eyes to the defects and limits of the analytic method. He designates the sexual theory as "unaesthetic and intellectual, little satisfying," the theory of impulse as "decidedly poisonous."

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In the cited publication of Jung, it is the will to power which lies at the basis of the Adler theory; in the more recent development of individual psychology, the impulse to be effective has remained, the feelings of being of little worth have been allowed to become suppressed. These develop, however, above all from a disturbance of the communal feeling. The charge of "poisonousness" does not apply, indeed, to the modern individual psychology, at least not in the same measure. For the rest C. G. Jung emphasizes that one should apply both theories not to exaggerated ideals and to deep convictions which then are led back in a most painful manner to banal realities, but that both are essentially therapeutic instruments out of the equipment of the physician, whose task it is to obviate the dangerous incompatibility with the unconscious.

In his book *Psychological Types*, C. G. Jung relates his principle of classification (extraverts and introverts) in an interesting fashion to the distinction which Friedrich Schiller had made between the poets who write naively and those who write sentimentally.

In connection with this personality psychology of the unconscious, let us make a few remarks in general concerning the investigation and the interpretation of the unconscious mental life. The ideas of the French school at Nancy, which emphasizes with great stress the more positive influence of the unconscious through autosuggestion, have become available to a wider circle of German readers through a series of articles, mostly of a popular nature, concerning Coué's system and through a translation of Baudouin's works. H. Driesch published in 1926 an important book, *Fundamentals of Psychology* with the sub-title, *Its Present Crisis*, which gives a systematic synthesis of the anomalous phenomena of the mental life and the mental levels that belong to it (the normal ego, hypnotic ego, subhypnotic ego, dream ego, etc.). The fundamental idea of Driesch's psy-

chology is in general this: one only can *have* something consciously, one can not *do* something conscious. In particular the processes of thought and will complete themselves unconsciously. Without reference to pathological and anomalous phenomena, A. Drews has treated the normal mental life from the standpoint of the hypothesis of the unconscious in his comprehensive *Psychology of the Unconscious*, 1924, in accordance with the line of thought developed by Edward v. Hartmann in his philosophy of the unconscious.

In a few words we must finally refer here to the position of the so-called metapsychology or parapsychology in Germany. All the way from a clear cut disavowal (H. Henning, *Contemporary Psychology*), all shades of scepticism and critical foresight (M. Dessoir, *From Beyond the Mind*, 1917) to an optimistic approval of the justification of the new field of investigation (T. K. Oesterreich, *The Occult in the Modern World-Picture*, 1921)—all views are represented. Among the protagonists of the recognition of mediumistic phenomena (teleplasm, telekinesis) must be mentioned the nerve-specialist of Munich, Baron v. Schrenck-Notzing. A number of famous scholars have become convinced of the genuineness of the phenomena. On the other hand, the objectors have in no way been silenced. On the whole one can say that official science still regards this field with great reserve. Among those who have insisted on the necessity of breaking ground in the direction of scientific investigation in this field are above all the Tübingen philosopher, Oesterreich, and the well known vitalistic biologist and philosopher, Driesch, who is the present president of the Society for Psychical Research.

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### *Comparative Psychology*

The term comparative psychology is used in Germany as a generic name with a very wide denotation, to designate those fields of research which assume the task simply to investigate the peculiarities of the mental life under certain conditions (stage of development, genealogical affiliation, condition of health, community life, field of culture, *etc.*) in comparison with the mental life of the normal adult man which is studied in general psychology. The following tabular survey will probably most easily afford an orientation toward its manifold activities:

#### A. Animal Psychology

#### B. Comparative Psychology of Mankind

##### I. Normal Mental Life

##### 1. Mental Life of the Individual, with special reference to natural affiliations:

- a. In the direction of age-levels  
(*e. g.*, Child Psychology)
- b. In the direction of genealogy  
(*e. g.*, the Psychology of Women)

##### 2. Mental Life in a Community, with special reference to social affiliations:

- a. Simply to a mass, to a calling, to a class
- b. To a people, a race, a culture-circle

##### II. Abnormal Mental Life

1. Abnormal Functions of Persons Normal in Themselves (dream)
2. Mental Life of Abnormal and Diseased Persons

#### C. Psychology of Particular Functions of the Mental Life (*e. g.*, speech, religion, art)



In 1923 G. Kafka published a three-volume *Handbook of Comparative Psychology* in which, to be sure, the above mentioned fields were classified differently. We have already discussed in previous sections many subjects that could also be included within comparative psychology.

We have yet to call attention particularly to the extensive literature on child psychology. The methods of investigation correspond to the particular school to which the respective psychologist in general belongs. So H. Volkelt reported in an interesting way to the Ninth Psychological Congress in Munich concerning the progress of experimental child psychology. This throughout no longer deserves the criticism that it remains a stranger to the natural mental life of the child. K. Koffka's *The Fundamentals of Mental Growth* is written throughout from the standpoint of the psychology of *Gestalt*. E. Spranger's *Psychology of Youth* has already been discussed in connection with intuitive psychology. Individual psychology is represented by a long series of monographs dealing with the psychology of the child. Of the larger treatises concerned with this subject are still to be mentioned the works of Clara and William Stern and Charlotte and Karl Bühler.<sup>20</sup> The whole psychology of childhood is very strongly influenced by the doctrine of development.

In the field of animal psychology must be mentioned the significant investigations of W. Köhler in connection with apes, which have indicated unmistakable acts of intelligence on the part of animals; furthermore the researches of von Frisch on *The Speech of Bees* (1924). The bees which have found nourishment communicate their manner of satisfaction in the bee-hive through dances which differ with the kind of nourishment. The distinguishing rôle in the

<sup>20</sup> C. and W. Stern, *Monographs concerning the Mental Development of the Child*, 1922; W. Stern, *The Psychology of Early Childhood*, 1923; *The Intelligence of Children and Youth*, 1920; K. Bühler, *The Mental Development of the Child*, 1924; Ch. Bühler, *The Mental Life of Youth, An Analysis and Theory of Psychological Puberty*, 1925.

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### *Metaphysical Psychology*

The final philosophical and uncommonly significant metaphysical questions in relation to psychology are:

1. How is the mutual dependence of the mental and bodily processes to be explained: do the series of conscious events and those of neural processes simply run parallel, or are they in a condition of interaction?
2. Is there a real unconsciousness?
3. Does the bodily event correspond only to a sign of the mental or is it by inner necessity a symbolic expression?
4. What is the meaning of the mental life?
5. Can the mental exist by itself, is there a personal immortality?
6. Is the mental life determined, or is there a genuine freedom of the will?

It is not within the scope of this report to discuss these questions in detail. Only a few remarks may be devoted to these border-line issues. Toward the first of them is aimed the question which arises in connection with almost every investigation in experimental psychology: does the observed uniformity of occurrence permit of a physiological explanation or must it be explained psychologically (Weber-Fechner law, scope of consciousness, geometric-optical illusions, spatial perception, etc.). The question does not indeed decide the old controversy between parallelism and interactionism, but it can be brought in relation to it. E. Becher of Munich must be mentioned as a representative of a refined doctrine of interactionism (doctrine of double purpose and double effect) according to which the mental as well as the neural event at each temporal moment depends simultaneously upon the preceding mental and neural events,

both of which therefore continuously influence each other. The mind plays the part of leader in the events of the organism and especially of the brain. The residuals of memory are unconscious mental contents. The development of thought in Becher's system is closely allied to that of the psycho-vitalistic Driesch. From the Catholic point of view the relationship of the soul to consciousness and to the body has been set forth by J. Geyser in his book, *The Soul* (1914). As representatives of the parallelistic standpoint are to be mentioned Th. Ziehen, T. Schultz, and Heymans.

A special significance, also of a theoretical sort, attaches to the bearing of the second of the above-mentioned questions upon psychoanalysis. Is the unconscious anything more than a mental phenomenon in the shade? Does it lead a peculiarly real, dynamic existence? Also the question of a super-personal unconscious arises in this connection. A comprehensive discussion of these problems has been developed recently in G. Giese's, *The Extrapersonal Unconscious* (1924). The remaining questions develop discussions that lead too far afield into the realm of pure metaphysics.

### Summary

The preceding sketch might easily arouse the impression of a confusing multiplicity of tendencies. A survey, with the exclusion of applied and comparative psychology, is offered in the table on the next page. This tabular survey in itself shows that the chaos is not as bad as it may seem at first glance and as it is occasionally claimed. The various currents and tendencies can very well be justified in part when considered as proceeding side by side. Their methodological differences correspond indeed to fundamentally different problems that have been set up. A point which has perhaps not yet been sufficiently emphasized is the fun-

3. Explanation of the mental life by means of externalizing the unconscious on the basis of (past) experiences (psychoanalysis, individual psychology)

## Psychological Movements Exclusive of Applied and Comparative Psychology

	1. Experimental Method, (introspection of the observer)	2. Intuitive Method, (empathy, re-living, intuition, natural observation)	3. Objective Procedure (through observa- tion of others)
1. General Psychology (investigation of single psychical contents and processes)	a. Psychology built up out of elements b. Psychology of <i>Gestalt</i>	Phenomenological point of view	a. Psychology of expression b. Psychology of behavior
2. Personality Psychology (systematic character- ization of the total personality)	Differential psychology	"Structure" point of view, ideal types	Classification into types with reference to bodily-build, physiognomy, handwriting, bodily posture
3. Explanation of the mental life by means of externalizing the unconscious on the basis of (past experiences (psychoanalysis, individual psychology))			

damental difference between the mind and its content and processes as an *object*, and observing it as *subject*. In the first case the investigation is directed towards the objective mental life; in each case, towards the clear presentation and systematization of mental realities and their real uniformities according to law, towards the organization of characteristics of outward stimuli in connection with the neural events on the one hand and the psychical phenomena on the other, and towards the interrelationship of the conscious and the unconscious. The vanishing point in the perspective of this objective psychology, which deals with the assumption of the reality of the mental and with the question of the body-mind relationship, lies in a non-valuating metaphysics, in the question concerning the rôle of the mental in the scheme of total reality. This question naturally will no longer lie beyond the pale of the experimental method which is recognized as adequate in its own realm, by which it is assumed that experimental psychology also can justify its own inner principles which correspond to the peculiar nature of the objects of its science, the mental phenomena. In the second of the above-mentioned cases the question is directed toward the subjective mental life, towards the significance of the individual experiences within the limits of the total personality of the experiencing subject. This question involves those of pre-scientific mental and human knowledge. It interests itself in the manifestations of the mental life as an outflow and an expression of the personality. In the first attitude, for example, we are concerned with the ideas and feelings as objects, with the establishment of the integrative characteristics of these mental contents, how they arise and proceed; in the case of the second attitude, to understand their inner nature as experiences and their meaning for the personality which experiences them, to show how the single experience arises out of the total structure and how contrariwise the person-

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ality is to be understood in terms of it, and how the personality reflects itself in the experience. This psychology, which as a science should of course likewise aim at systematization, must naturally employ the intuitive method, the observation of structure, and must try to investigate the relationship between the peculiarity of the experience and the peculiarity of the forms of expression, especially of the body. The vanishing point of the perspective of this subjectivistic psychology lies in evaluative metaphysics and in the cultural sciences. The type first described seeks after relationships of reality; subjectivistic psychology, after the integrity of meaning. For the former, therefore, causal observation is of most service; for the latter the observation of end is more important. Inasmuch as the object is intrinsically the same for both, namely the mental event, the various fields naturally overlap and both points of view struggle for priority. But this is no loss. A personality investigation of the future must call into its service methods of the most varied nature: the experimental conception of individual peculiarities, the observation of structure in accordance with a philosophy of life, and a feeling for standards of value; the causal and the purposive categories; the study of inherited dispositions, and the influence of experiences conditioned by the environment; the indices which psychopathology affords, and knowledge of the manner in which the mental life expresses itself in bodily forms and manifestations; psychoanalysis, and the method of observation of individual psychology. But also on behalf of the objectivistic, theoretical, systematic, metaphysical psychology must various tendencies coöperate: the analytical and the *Gestalt* attitude, the investigation of the consciousness and unconsciousness of both the normal and the pathological.

A. WENZL

MUNICH, GERMANY.

## SOME RECENT BOOKS

*The Functions and Forms of Thought.* By ALBERT E. AVEY, PH.D. New York, Henry Holt and Co., 1927. Pp. ix+395.

To introduce students to the exact discipline of the algebra of logic in such a fashion that its symbols and operations shall appear germane to the concrete processes of thinking and that the algebra shall seem to be a veritable science of the field of thought—rather than to be merely an exacting game quite detached from the living actualities of thinking—is certainly a task as difficult as it is rare in accomplishment. This new text, through its unusual combination of the functional and formal approaches to logical analysis certainly mitigates some of the difficulties. It presents an interesting and novel program for a first course in logic.

*Idealism as a Philosophy.* By R. F. ALFRED HOERNLE. New York, George H. Doran Co., 1927. Pp. 330.

A masterly exposition of philosophical idealism. The author has clearly differentiated the "four main types"—Spiritual Pluralism, Spiritual Monism, Critical Idealism, and Absolute Idealism—and, with a fine but properly subordinated historical orientation, studied and analyzed each type in the form it assumes in the rivalries and controversies of present day discussion. This volume is a considerable amplification and revision of the earlier (1924) *Idealism as a Philosophical Doctrine*. Of special interest is the fuller treatment, in additional chapters, of Ward's Pluralism and Theism and of Bosanquet's Philosophical Theory of the State, and the admirable comparative treatment of Schopenhauer and Bergson as representatives of "spiritual monism." The book is a model of philosophical interpretation and of philosophical writing.

*Collected Works of V. I. Lenin.* Vol. XIII: *Materialism and Empirio-Criticism.* Tr. by DAVID KVITO. New York, International Publishers Co., Inc., 1927. Pp. \$4.00.

This volume inaugurates the project of a finely dressed edition, in English, of the complete writings and speeches of V. I. Lenin. The publishers have been aided by the Lenin Institute of Moscow in securing revised and edited texts for translation, along with explanatory notes, and photographs and facsimiles of manuscripts. Thus the edition, which is expected to run to thirty volumes, will doubtless prove definitive as well as complete.

The present volume is not so much a sober, objective philosophical treatise as a lashing of those who are believed to depart from the teachings of the socialists' Bible. It is a spirited defense of the Marxian philosophy, termed dialectical materialism, and a heavily documented polemic against all attempts at a philosophical revision of the latter, more especially the empirio-critical philosophy of the Russian followers of Ernst Mach. The latter is alleged to cover up "the old errors of idealism and agnosticism with a new brand of trickery and new stock of phrases and sophistical contrivances," tending towards "close union with one of the most reactionary of idealistic schools—the philosophy of immanence." In a chapter on "The Latest Revolution in Natural Science and Philosophic Idealism," it is recognized that numerous modern physicists "fell from relativism into idealism," but this is ascribed to "ignorance of dialectics." It is maintained that the type of physics "in vogue now is just as reactionary and transitory as the fashionable idealistic physiology of the recent past." While of little importance to philosophy proper, the book will be of vital interest to those seeking to understand the mentality and the outlook of an individual and a party tremendously potent in the world of affairs.

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*Philosophy.* By BERTRAND RUSSELL. New York, W. W. Norton & Co. Pp. vi+307. \$3.00.

This work, which appears in Great Britain under the title *An Outline of Philosophy*, offers a general account of the problems facing philosophy today. To them the author brings his unusual powers of analysis and his learning in the fields of psychology and physics. The doctrines of physics as modified by the theory of relativity and those of psychology as influenced by behaviorism are utilized in the construction of a philosophy of "neutral monism." The chapter on ethics exhibits a radical reversal of attitude from that taken in the *Philosophical Essays* of 1910, though the grounds for this change are, unfortunately, not presented as fully as many readers might desire.

*The Analysis of Matter.* By BERTRAND RUSSELL. New York, Harcourt, Brace & Company, 1927. Pp. viii+408. \$6.00.

The student of philosophy is here given an understanding of the problems facing him in the field of physics, and the student of physics is afforded an insight into the speculative character which his subject has assumed, as well as into the philosophical implications of the various lines of theory. Readers having a general knowledge of psychology and physics will here find a cogent statement of Mr. Russell's metaphysics of "neutral monism." A good approach to the book would be the author's earlier work, *The Analysis of Mind*.

*The Ways of Knowing.* By WILLIAM P. MONTAGUE. London, George Allen & Unwin, Ltd., 1925. Pp. +427.

Three aims are here paramount: To disentangle the methods of logic and of epistemology from the subject of metaphysics; to set up these methods with their historical and their current objections; and to synthesize the methods of logic into harmonious affiliations, as well as to restate the methods of epistemology from a realistic point of view in such a way that they are "not only compatible with, but implicative of one another." In the disentanglement and setting up of the methods, *The Ways of Knowing* achieves its greatest success; the student with a background of two or three philosophical or psychological courses is provided with an excellent opportunity of "getting straightened out philosophically." The attempt to reconcile the methods of logic is less happily accomplished. In fact, perhaps the need is in this case a bit artificial. The restatement of the methods of epistemology, however, while showing a realistic bias, should aid in bringing the rival camps of new realism, critical realism, and idealism into a better understanding of one another even if not into closer harmony. The book is "meaty" and suggestive, and shows the meticulous work of many years of presentation and discussion of the problems considered.

*Reality.* By BURNETT HILLMAN STREETER. New York, The Macmillan Company, 1926. Pp. xviii+350.

Philosophical readers with a theological bent will be particularly interested in this volume. As its sub-title indicates, it is "a new correlation of Science and Religion." The book is a fine expression of a mind that inclines towards idealism and strives to reconcile the recent developments of science with modernistic Christianity. A cosmology built from the conclusions of the sciences, it contends, can yield only a quantitative reality; to secure a true cosmology, the qualitative features of experience must likewise be taken into account. These qualitative features come from an analysis of "the phenomena social, historical, psychological—of human religion, of which the most important is the fact that Christ once lived and taught and died." Helpful synopses preface the individual chapters.

*Philosophy of the Recent Past.* By RALPH BARTON PERRY. New York, Chas. Scribner's Sons, 1926. Pp. viii+230. \$2.00.

This book employs roughly the same topical outlines as the author's earlier work, *Present Philosophical Tendencies*: It describes in swift, broad strokes the development of the four main trends in present day thought from about 1860 to the present time—that is, of naturalism, both materialistic and positivistic; of spiritualism and idealism; of pragmatism, voluntarism, and vitalism; and of realism. Admirable for its critical expositions and its bibliographical directions, the account is too brief to present more than the merest skeleton of present day philosophy. As an introduction to current thought it will require a very extensive elaboration and supplementation.

*Mind and Body.* By HANS DRIESCH. Authorized translation by Theodore Besterman. New York, Lincoln Mac Veagh, 1927. Pp. 191. \$3.00.

In admirable translation and attractive dress, the third edition of Driesch's *Leib und Seele*, first published in 1916, is now available to English readers. A number of traditional arguments against psychophysical parallelism are here supplemented by others more or less original with the author, and based in part on his vitalistic doctrine and in part on the great disparity between the manifoldness of the psychical and that of the physical order. The case made against mechanical parallelism is both clear and impressive. A certain parallelism, however, is defended, namely, between the activities of the mind which underlie conscious states, the conscious states themselves, and the "psychoid" or entelechy, a non-spacial entity possessed, according to Driesch's psychovitalistic philosophy, by all living organisms and determining their characteristic functions.

*Religious Experience and Scientific Method.* By HENRY NELSON WIEMAN. New York, The Macmillan Company, 1926. Pp. 387.

Parts I and II of this valuable book expound the reciprocal relations believed to exist between science and religion; Part III contains a critical analysis of various current conceptions of religion, together with an interpretation of the function of religion which strongly reflects the influence of W. E. Hocking. Religious experience is conceived as experience of an object which, however undefined, is genuinely external to the individual undergoing the experience. If religion is not to lose intellectual standing and to degenerate into a means for self-deception, its object, the author argues, cannot be more peculiarly "within" than are the objects of scientific investigation. "Religion must plant itself firmly on the data of sense else it will become the plaything of the sentimentalist and nothing more."

*God and Intelligence in Modern Philosophy.* By FULTON J. SHEEN, M.A., Ph.D. London, Longmans, Green and Co., 1925. Pp. xiii+295.

The "new conception of God"—by which is meant primarily the conception of a finite, immanent, and evolving or "emerging" Deity—is studied as being one of the most important products, theoretically and practically, of the modern philosophical spirit which is held to be essentially anti-intellectualistic. This conception is admirably analyzed in the thoroughly documented first part of the volume, where the author's wide and sympathetic acquaintance with the recent extensive literature is strikingly evident. The second part of the book sets the modern and the Thomistic notions of God and of intelligence in effective critical contrast. The sound scholarship of the work merits the careful reading which the author's humane and lucid style makes a pleasure.

*Hindu Mysticism.* By S. N. DASGUPTA. Chicago, The Open Court Publishing Company, 1927. Pp. xx+168. \$2.00.

This interesting and informative volume presents the substance of six lectures delivered by the celebrated scholar of the University of Calcutta on the Harris Foundation of Northwestern University. In general the problem is treated genetically, so that we now have a brief, though doubtless authoritative, description of the various forms of Indian mysticism in the order of their development: Sacrificial Mysticism, Upanishad Mysticism, Yoga Mysticism, Buddhist Mysticism, Classical Forms of Devotional Mysticism, and Popular Forms of Devotional Mysticism are the subjects of the several chapters.

*Humanism.* By CURTIS W. REESE. Chicago, The Open Court Publishing Company, 1926. Pp. 85. \$1.00.

This book makes no attempt to pour the old wine into new bottles but rather represents a break from the traditional theology. Religion is conceived as the quest for facts and values to be used in the enrichment of human life. Brief chapters discuss the humanizing of religion, of ethics, of mysticism, of human nature, of liberalism, of the church and of democracy.